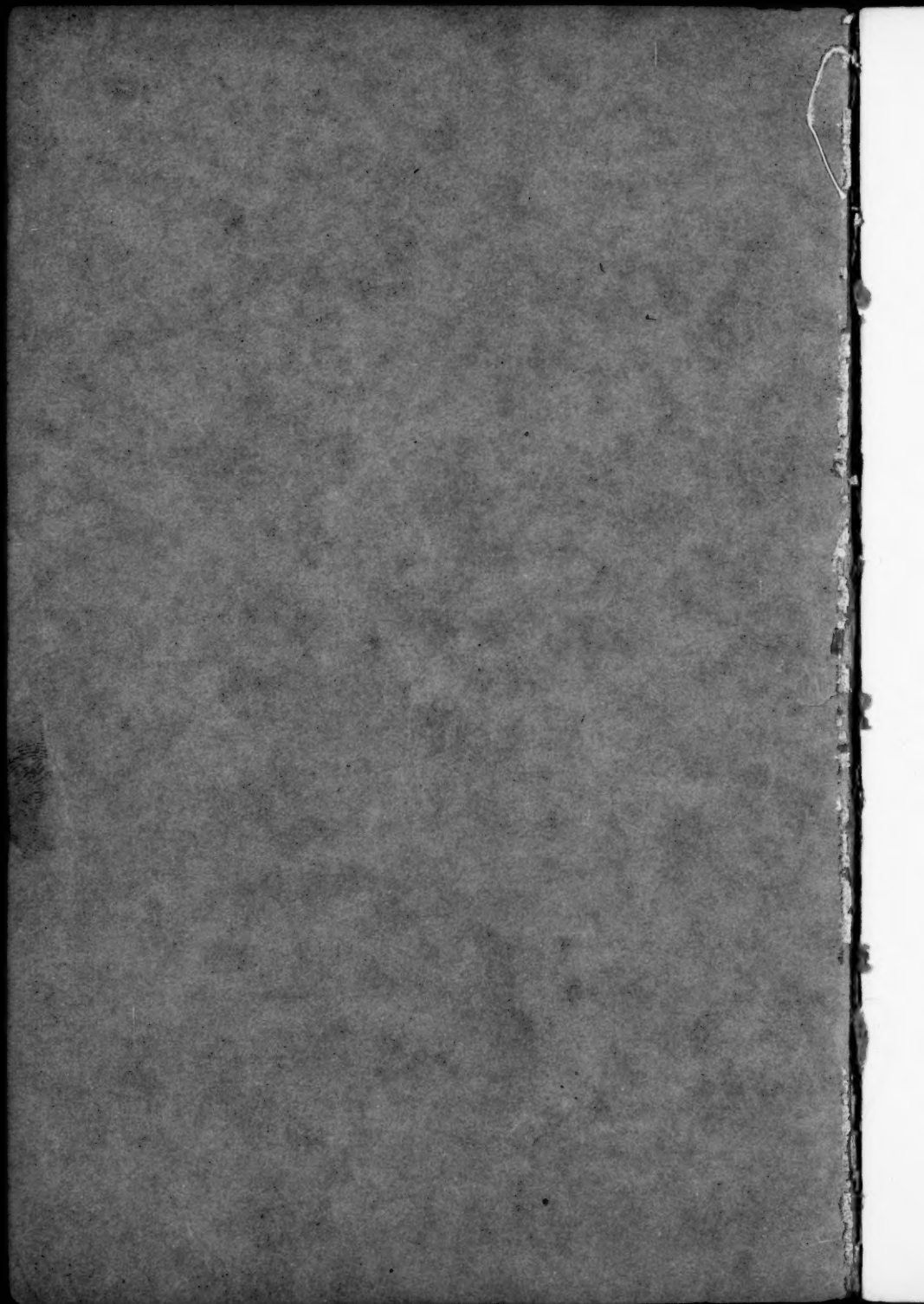


# SCIENTIFIC METHOD IN SUPERVISION

THE SECOND YEARBOOK OF THE NATIONAL  
CONFERENCE OF SUPERVISORS AND  
DIRECTORS OF INSTRUCTION

BUREAU OF PUBLICATIONS  
Teachers College, Columbia University  
NEW YORK CITY

1929





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DIRECTORS OF INSTRUCTION

*Compiled by*

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OF THE CONFERENCE

BUREAU OF PUBLICATIONS  
*Teachers College, Columbia University*  
NEW YORK CITY  
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## EDITOR'S PREFACE

The plan for the second yearbook of the National Conference was accepted by the Executive Committee at a special meeting held in New York in April, 1928. This was in accordance with a resolution adopted by the Board of Directors at the Cambridge meeting in February preceding, which provided for a special committee to report on yearbook policy and placed the responsibility for a yearbook for 1929 in the hands of the Executive Committee.

The plan proposed by Dr. L. J. Brueckner for a study dealing with objective methods of evaluating teaching and kindred subjects was accepted and the following committee appointed:

Leo J. Brueckner, Professor of Education, University of Minnesota, Chairman

Orville G. Brim, Professor of Education, Ohio State University

William H. Burton, Associate Professor of Education, University of Chicago

William S. Gray, Professor of Education, University of Chicago

Ernest Horn, Professor of Education, University of Iowa

James F. Hosie, Professor of Education, Teachers College, Columbia University

With the exception of a conference held in Chicago in October of the same year, at which there were present the chairman, Dr. Brueckner, and Messrs. Burton, Gray, and Hosie, the work of collecting manuscripts was carried on by correspondence. Considering the brevity of the time available and the difficulty of the method necessarily used, the results attained are praiseworthy in the extreme. The chapters contributed are more perfectly focused on a single problem than was the case in the first yearbook, and they represent, with a few exceptions, material collected and presented solely for publication through this medium. Taken as a whole, the volume evidences distinct advance in the

direction of scientific method as opposed to mere subjective impression in the judgment of teaching.

In addition to this the several studies in general and certain chapters in particular are highly suggestive as to the possibility of scientific method in the work of supervision taken as a whole. In this respect the report may be said to mark an epoch and usher in the day when personal impressions no longer satisfy but must give way whenever possible to verifiable conclusions drawn from carefully collected data. While the techniques described are no doubt used as yet by comparatively few of those actually engaged in helping teachers, their superiority has been to some extent established, they will in course of time be refined and varied, and they will tend to make supervision at once more acceptable and more effective. Teachers will welcome methods of supervision that are not only friendly and well-meant but also impersonal and objective.

J. F. H.

New York, N. Y.

November 27, 1928.

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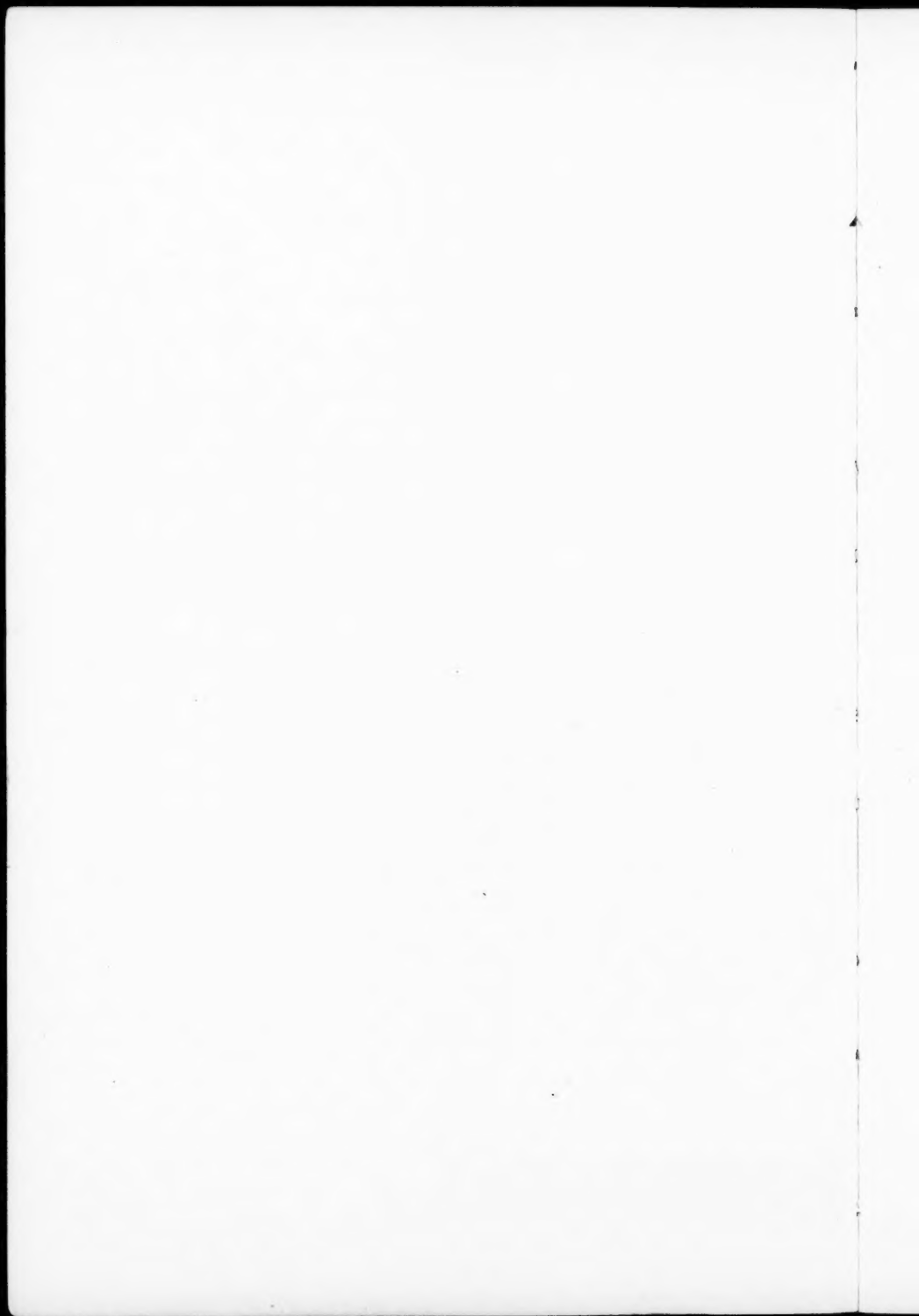
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## INTRODUCTION

### THE PURPOSE OF THIS YEARBOOK

The main purpose of this yearbook is to make available for supervisors in a compact form descriptions of various techniques that have been devised by means of which the supervisor can analyze the educational situation from various angles in a much more definite way than is possible by the use of conventional methods.

One of the chief merits of these objective procedures is that they supply the supervisor with tools by means of which he can secure factual data concerning activities in the classroom to supplement the valuable information secured by means of standardized tests of achievements in academic subjects. The techniques also assist the teacher to analyze his work and to compare his procedures with those of others. Present standards for evaluating the quality of the instruction are almost wholly subjective, and there is little agreement among supervisors as to the merit of teaching observed. Experiments have shown the possibility of securing greater reliability and validity of teacher rating by: (1) defining what good teaching is as established by the discovered principles of education; (2) stating the elements of good teaching in terms of definite, observable, objective teacher and pupil activities that are understood by all who must evaluate the teaching art. The procedures discussed in this book assist in the diagnosis of the difficulties of the teacher, aid in the locating of excellence in the teaching, and facilitate the formulation of the training program that must be carried on by the supervisor after existing conditions have been made clear.

An important reason for the development of these objective studies of classroom practices is the necessity of making more complete and definite descriptions of procedures which are being evaluated experimentally so that the variables which have invalidated many of our educational experiments may be better controlled than is usually the case. Finally, these techniques

supply the supervisor with the means by which he can appraise the results of his own activities. He can make fairly accurate comparisons between conditions as they exist before and after a supervisory program.

It is believed that the use of these devices will greatly increase the efficiency of the work of the supervisor, since it will be placed on a much more definite basis than before. The more accurate and complete the available information concerning the status of teaching in a school or in a city is, the more adequately can the supervisory program be adapted to the needs of the teachers and pupils. Certainly the work of the supervisor will be more satisfying, since it will be based on tangible, definite information and will not be a "thrust in the dark," as has too often been the case.

It is the hope of the committee that the descriptions of the techniques that are presented in the yearbook, with their obvious limitations, will stimulate workers in the field to strive to perfect more satisfactory instruments of this kind and to refine those that have so far been devised.

#### ORGANIZATION OF THE CONTENT

An overview of the organization and content of the yearbook will make clear to the reader the nature of the topics dealt with in the discussions in the following chapters. The materials that have been assembled can readily be grouped under six general headings.

Section I (chapters I and II) contains a general description and an evaluation of typical methods of describing instructional practices that were used in the earlier school surveys and a summary of the more recent attempts that have been made to devise techniques for making objective studies of teaching practices.

Section II (chapters III and IV) contains detailed descriptions of typical methods that have been devised for making objective studies of aspects of the work in the classroom pertaining directly to the pupils, such as methods of recording the various activities of pupils, measuring their attention, and determining their interests and attitudes. Illustrations of ways in which the procedures have been applied are given and, where available, data on their reliability and validity are included.

Section III (chapters V-VIII) describes in detail methods by means of which the supervisor can secure objective, quantitative



information concerning various aspects of the educational situation that relate directly to the teacher. The procedures described deal with such topics as the recording of general facts regarding teaching practices, surveys of errors in teaching procedures, diagnosis of teaching difficulties by means of standard tests of achievement, teaching difficulties secured from statements of teachers, and methods of determining the difficulties of student teachers. This section is full of many helpful suggestions.

Section IV (chapters IX-XIII) describes various methods of making objective, quantitative studies of aspects of particular recitations, such as the distribution of time to subjects and to the different parts of lessons, the nature of the activities used in various phases of lessons, instructional handicaps, cumulative records for recording data on faulty procedures, and general techniques for evaluating the teaching of particular subjects.

Section V (chapters XIV-XVII) presents data on techniques that have been developed for determining the reliability of the procedures described in sections I-IV, and a description of an effort that is being made in Detroit to control as many aspects of an extensive experimental study of ~~the~~ value of various methods of providing for individual differences as is possible by the use of such devices as have been developed either for measuring pupil achievement or for describing in exact terms the daily work in the classroom. The data in this chapter show the merits and limitations of the objective methods of analyzing classroom procedure very clearly and point out many difficulties that are encountered by those who are attempting to develop such techniques. Much more experimental work of this kind is needed.

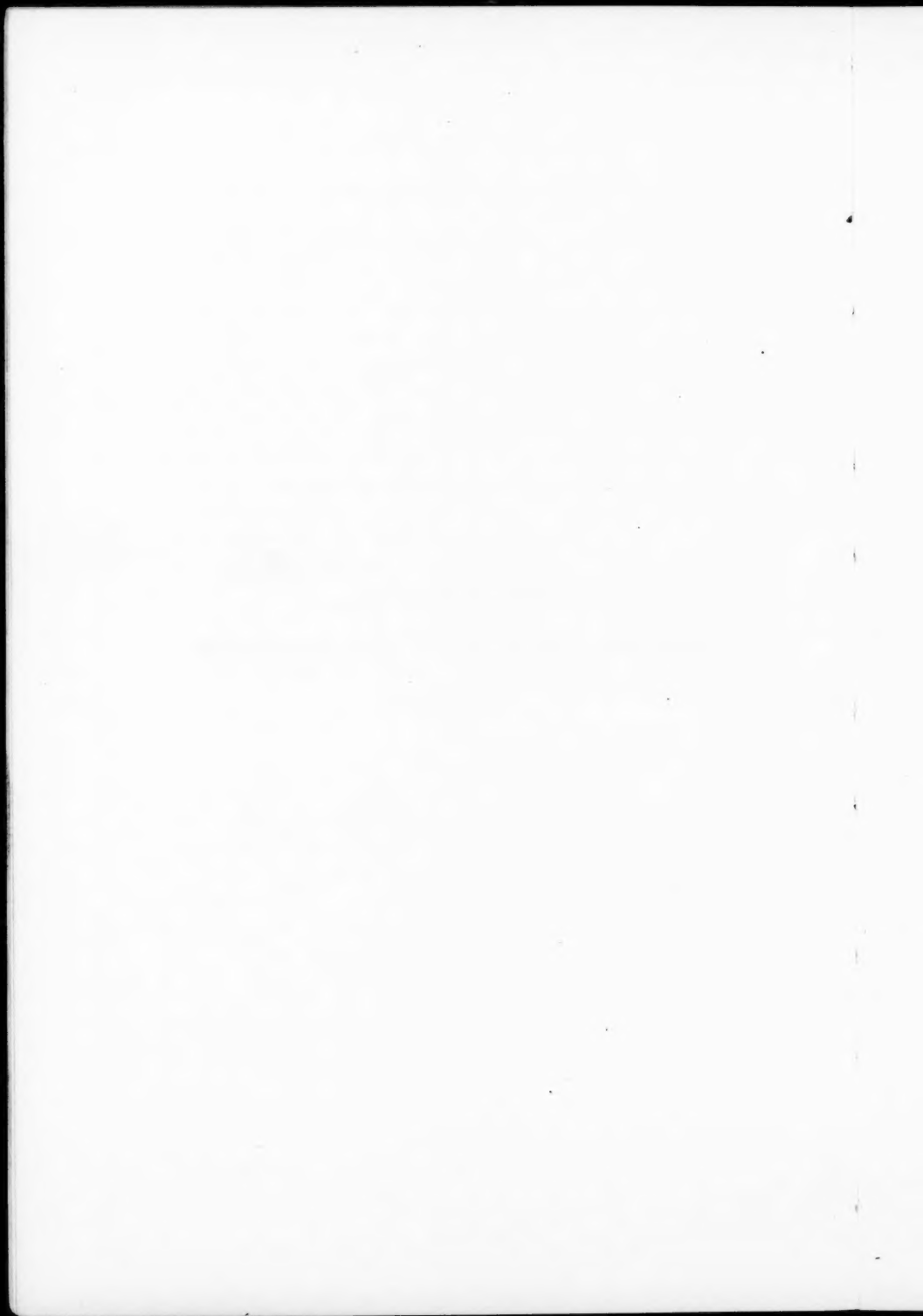
In Section VI (chapters XVIII-XX) are described methods by means of which the supervisor can secure the coöperation of teachers in the study of such problems as the evaluation of supervisory activities and their effect on instructional practices, the collection of types of lessons that are being taught by superior teachers, in dealing with such work as character education, history, and arithmetic, and the experimental study, selection, and evaluation of other kinds of curricular material. An analysis of material of this kind submitted by teachers makes it possible for the supervisor to secure a great deal of valuable information as to current practices in the schools and to set up supervisory

programs to bring about an improvement where deficiencies are revealed.

Section VII (chapters XXI and XXII) contains suggestions both as to a more or less ideal procedure to be used in making a survey of instruction and practical suggestions as to the uses a supervisor can make of the procedures that have been described in the previous sections of the book.

The statements by the various contributors are published as submitted. This has resulted in a small amount of repetition, which the reader will note as he proceeds through the book. However, the general plan of the committee of preparing a complete outline in advance and securing contributions on specific points has reduced the amount of repetition to a minimum and has made available a fairly comprehensive, systematic discussion of the topic being considered in this yearbook.

**SECTION ONE**  
**PRESENT STATUS OF THE PROBLEM**



## CHAPTER I

### DESCRIPTIONS OF INSTRUCTIONAL PRACTICES IN THE EARLIER SURVEYS OF SCHOOLS

LEO J. BRUECKNER

In order to organize an effective supervisory program, the supervisor must first have as complete and accurate a picture of current practices as can be obtained. The details of the picture should, if possible, be of a factual, quantitative nature. At the present time extensive use is made of the standardized educational tests which give information concerning the achievements of pupils in the several subjects of the curriculum. A consistent feature of the data gathered by means of these tests has been the wide variations in the results that have been secured in the various schools. Comparisons of achievement have been made between cities and between schools in the same city. This has been possible because the unit of measure is the same from city to city. A score, for example, of 20 examples worked correctly in a certain time when the test is given under the same conditions has the same meaning in city A as in city B. Practically all surveys of instruction in urban and rural schools have included the results of the measurement of the achievements of the pupils by means of standard tests as well as comparisons with similar communities.

From the beginning of the survey movement attempts have been made in most surveys to give some sort of picture of the actual teaching observed in the classroom. It was apparently felt that the data secured from standard tests gave only a very narrow view of the nature of the work being done in the schools. Assuming that the wide differences in achievement of pupils may be in part the direct results of the teaching in the classroom, it becomes necessary to attempt to define those practices accurately and then to determine the efficiency of various methods of teaching by careful experiments. If it can be shown that the teaching



in one locality is inferior to that in another, it would seem reasonable that the differences in achievements of pupils may be due, in part at least, to this factor. The experimental study of the efficiency of teaching methods has made it necessary for those experimenting to define the methods being studied so clearly that the conditions can be duplicated by anyone conducting a similar study. The objectives of the teaching have had to be determined definitely, stated as concretely as possible, and evaluated in the light of the educational philosophy of the community. Thus have developed the beginnings of a science of curriculum making.

It is very difficult to give an adequate picture of the teaching in a school. An activity rather than a static situation must be described, a process rather than a product—a process that is constantly changing, difficult to control, and subject to the influence of many variables. The most important of these are the native equipment of the child, his environment, and the teacher, whose task it is to create as effective a total learning situation for each child in the class as possible. The evaluation of the work in any classroom under present conditions is largely determined by the personal prejudices of the observer. There is little agreement among educators as to what constitute the most effective methods of instruction. This is evidenced by the great variations in the rating of a lesson by a group of supervisors. The differences in the judgments are due in large part to the lack of definite standards which have the same meaning to all observers of the work of the teacher in a particular lesson.

The survey movement has struggled with this problem from the beginning by attempting to give some evaluation of the teaching in the classrooms. In the early surveys the statements concerning the teaching are practically meaningless. We find the following statements in the Portland Survey of 1910: <sup>1</sup>

On the whole, the work observed in the lowest three grades—the primary—was good, much of it very good, some of it distinctly superior, equal to the best that the observer has ever witnessed anywhere.

While several teachers of the grammar grades whose work was studied were probably equal in ability to the best of the primary teachers, and while the grammar teachers on the whole seemed to compare favorably in ability with the primary teachers, the work observed in the grammar grades, both in methods and in results, seemed to be, as a whole, decidedly inferior to that observed in the primary.

<sup>1</sup> Portland School Survey, 1910.

This statement reveals the opinion of the survey as to the general merit of the teaching. Just what is meant by "good" or "very good" teaching is not made clear in the report. The reader who wishes to know with greater definiteness the exact meaning of this statement is at a loss because he has been given no specific examples of what is meant by good or poor teaching. There is no objective evidence of any kind to support the statement. If a description of what the writers considered to be excellent teaching had been given in the report, the statement would have been much more satisfactory and meaningful to the reader. There is no possible basis of comparison with the teaching in other communities.

A similar statement may be found in the report of the Cleveland Survey:<sup>2</sup>

An impression which was reported by every observer is that the quality of the instruction exhibited throughout the system is very uneven. Here and there some teacher stands out as full of energy and as thoroughly in command of his or her sphere of action. On the other hand, some cases of teaching were observed which are so bad that it is surprising to find them in the system.

This statement again reveals the lack of any method of making the meaning clear by defining what was meant by the descriptive terms used.

This type of statement can also be found in more recent surveys of instruction. The following quotations from the Stamford, Connecticut, and Gary, Indiana, surveys are typical:

In addition to the testing just mentioned, numerous visits were made to the classrooms of the elementary teachers. The spirit in the classes was found to be excellent and the relations between pupils and teacher were most satisfactory. In general, the pupils were passive, most of the direction coming from the teacher. It would be desirable to have more initiative during the recitation on the part of the pupils themselves. In practically all classrooms considerable attention was being given to the mechanical side of arithmetic. In general, the solution of problems was given relatively less attention. At times, a tendency to make the work in arithmetic rather formal was noticed. With a little supervision, this work could be much improved, with the advantage of reducing the time spent on certain topics, thus allowing more time for the solution of problems.<sup>3</sup>

<sup>2</sup> Judd, C. H., "Measuring the Work of the Public Schools," *Cleveland Survey*.

<sup>3</sup> Strayer, G. D., and Engelhardt, N. L., *Report of the Survey of the Public Schools of Stamford, Connecticut*. New York: Teachers College, Bureau of Publications, 1923.

In the report of the Gary Survey we find the following statement:

Of the reading heard in the upper primary grades, some of it was good, but in the main it ranged from ordinary to poor. The selections were usually excellent, comprising the best of myths, fairy tales, fables, folklore, poems, and descriptive narrations of famous events and characters—that is, the best available material had been selected, but the teaching technique was often seriously at fault.<sup>4</sup>

In the survey of instruction in the New York schools, McMurry visited a large number of classrooms and made an evaluation of the teaching according to his four well-known standards.<sup>5</sup> However, he made no attempt to give a picture of conditions in quantitative terms. He gave only descriptions of individual lessons or phases of lessons and made comments appraising the work that he described. This survey was probably the first comprehensive investigation dealing with classroom teaching on a large scale. If McMurry had listed specific, objective, observable characteristics of lessons and had reported the results of his visitations in quantitative terms, the survey would have yielded an even more clear-cut picture of conditions than he was able to give. However, it is apparent that McMurry was concerned more with the possibility of evaluating conditions than with enumerating certain characteristics of lessons as a basis of giving a concrete, meaningful picture of the current teaching practices.

A step toward making more objective the nature of the standards by which the work in the classroom was evaluated was reported by Ayres in the Springfield Survey in 1914.<sup>6</sup> A general appraisal of the teaching is first made in the following terms:

The total number of classroom visits by the survey staff was 684, and 273 written reports on recitations were made by them. All of the members of the staff agree that in general the best teaching is done in the primary grades and that it tends to decrease in excellence in the upper grades, although there are many individual exceptions to both these generalizations.

The strongest feature of the work lies in the friendly and intimate relationship existing in the great majority of the classrooms between the pupils and the teachers. The least commendable general feature is that

<sup>4</sup> Flexner, A., and Bachman, F., *The Gary Schools, a General Account*. New York: General Education Board, 1918.

<sup>5</sup> McMurry, Frank M., *Elementary School Standards*. Yonkers, N. Y.: World Book Company, 1914.

<sup>6</sup> Ayres, Leonard P., *Public Schools of Springfield, Illinois*, 1914.

throughout the system there is far too little real teaching and much too much hearing of recitations in which the teachers question the pupils to discover how well they have mastered the lessons that have been assigned to them to learn.

This statement has the same characteristics as those already pointed out in connection with the previous surveys. However, an attempt was made to set forth the basis for the analysis by reporting some of the facts which were found by the members of the survey staff and upon which the evaluation was based.

When the members of the survey staff made their written reports on the recitations, they included some simple notes designed to indicate whether the teachers were mainly engaged in questioning pupils to find how well they remembered what they had studied in the books, or whether they were trying to help the children through observing, thinking, and discussing.

In the first place they noted whether it was the teacher or a pupil who was talking when the visitor entered. In seven rooms out of every ten it was the teacher who was doing the talking, while in the remaining three it was a pupil.

Similarly a record was made as to whether the recitation was predominantly one in which the teacher heard the pupils recite or whether she was attempting to stimulate them to think for themselves. In seven rooms out of every ten the records show that in the judgment of the visitor the teacher was mainly engaged in hearing the pupils recite what they had learned in the book.

Another record made at each recitation related to the type of questioning mainly employed by the teacher. The results showed that in eight out of each ten rooms the observer judged that the questions were predominantly of such a nature that the pupils could answer them only by stating facts or giving definite information. In two out of each ten rooms the object of the questioning was mainly to get the pupils to describe or explain.

A fourth set of records related to the answers of the pupils and showed whether these mainly consisted of single words, of phrases, or of sentences. These records show that the pupils in five rooms out of every ten answered mainly in single words, while in two cases they used phrases, and in the remaining three the answers were mostly in complete sentences.

This statement is unique in that it contains quantitative information concerning certain observable characteristics of the work in the classroom. It evidently was the purpose of the survey staff to secure facts that would help to *describe* the activities of the pupils and teachers in the classroom. To this end certain elements were selected upon which to secure definite information at the

time of the observations. When summarized for a wide variety of lessons in different subjects in the several schools of the city, general trends and characteristics would be apparent.

Consider the types of information that were secured. The first point noted was whether the teacher was or was not talking when the observer entered. This fact in itself is not an index of good or bad teaching. However, the proportion of teacher and pupil discussion may be an index of the general teaching situation and the relative extent of pupil and teacher participation. It is significant that the survey staff merely pointed out the facts revealed by their observations, but made no further comment or attempt to evaluate the findings.

The second point, whether the teacher was merely hearing recitations based on the book or attempting to stimulate the pupils to thought, can be answered by an analysis of the activities that occur during the lesson. However, the data given are based on the judgments of the observers rather than on any sort of accurate check such as might have been secured by the analysis of a stenographic report of a lesson or by some plan of recording the various activities that took place. The statement has the merit that it is an attempt to give an objective, quantitative description of one phase of the actual type of work done in the classes.

The third point, the types of questions asked, is again a statement of the facts, as judged by observers. Apparently no attempt was made to secure an accurate analysis or count of the number of questions asked by the teacher by recording or tallying them. To this extent the statement is unreliable. It is not known how dependable a judgment on this point an observer can give without making a systematic check as the lesson proceeds. It is a relatively simple matter for an observer to keep a record of the questions that are asked, both as to number and as to type, as was done by Stevens.<sup>7</sup> The information thus secured is much more accurate than merely a judgment expressed by an individual without definite facts upon which to base it.

The fourth point, concerning the answers pupils gave to questions, was also a statement of judgment by observers and has the same limitations as the second and third. It would have been

<sup>7</sup> Stevens, Romlett, *The Question as a Measure of Efficiency of Instruction*. New York: Teachers College, Contributions to Education, No. 48.



possible to secure the exact facts, if the survey staff had desired to do so, by using a plan of recording the complete discussions that took place during the lessons and analyzing the data secured. However, for the purpose of the survey the facts that were revealed probably gave a helpful, suggestive picture of the status of the teaching as far as it could be revealed by an analysis of data relating to the four points that were considered and the techniques that were used.

It is interesting to note that the survey staff made no attempt to *evaluate* the data reported concerning the teaching. No *comparisons* with other communities were possible because similar data from other schools were lacking. Nor was there any scientific evidence of any kind which might assist in the evaluation of the data. The survey staff wisely decided not to attempt the impossible, and contented itself with *enumerating* facts and leaving their *evaluation* to the reader.

Practically none of the city surveys that have been made since the one at Springfield include any data concerning classroom practice of the quantitative type found in that survey. The most comprehensive report of a factual analytical study of classroom practice that has since been made is contained in the survey of the rural schools of New York.<sup>8</sup> The blank that was used in the survey is described in Chapter V. Tables I and II (from the report) make clear the nature of the data on classroom practices.

The study of this section of the report shows that it deals with the analysis of classroom practice in a very detailed, descriptive way. Anyone can get a vivid picture of the type of work being done by the rural schools of the state by a study of the data which are contained in the report. Information is presented concerning the teaching of the several subjects. Data are given as to the type of lesson observed, although the report does not explain the meaning of the classification adopted. In evaluating any of the points of the lessons it was necessary for personal judgments to be made in most cases. These were clearly much more reliable than merely general reactions, since each point required a judgment on an observed phase of an activity by a disinterested person. It is not reported by Brim how closely two

<sup>8</sup> Bagley, W. C., "Teaching Personnel," *New York Rural Survey*, Part III, Chapter 12.



TABLE II  
TYPE OF ASSIGNMENT

	GEOG- RAPHY	HISTORY	READING	ENGLISH			SPELLING	ARITH- METIC	TOTAL	PER CENT
				G.	L.	Lit.				
No answer .....	9	2	46	7	10	7	29	48	158	
No assignment .....	17	10	59	4	6	10	58	75	249	
Study text .....	118	86	256	43	39	20	71	177	810	86.4
Solve problem .....	3	1		1	2	1		5	13	1.3
Appreciate something .....	1		21	1	2	4			29	3.0
Construct or create .....	13	3	1					2	40	4.2
Gather information .....	13	10	8	3	16	5		1	36	3.7
Indefinite .....		4	4		1				8	0.8

persons observing the same lesson will agree, for example, on the kind of lesson or the type of assignment. However, there is no reason to believe that the classifications will differ markedly since the group of observers agreed beforehand on the definitions of the factors to be recorded. The important point in connection with the New York survey is that here we have the first attempt to give a picture of teaching practices of a large number of teachers based on an objective analysis of classroom practice from a variety of angles.

The value of the information for supervisory purposes is obvious. What is the desirable practice? How can current practice be modified? What modifications are desirable? What training must be given? How can it be given? A discussion of the facts revealed by the survey and a statement of desirable practices can be made the beginning of a program of supervision. What facts could be revealed in any other community by an instructional survey of the type made in New York?

## CHAPTER II

### DEVELOPMENTS IN THE TECHNIQUES FOR SECURING FACTUAL DATA CONCERNING CLASSROOM TEACHING

LEO J. BRUECKNER

In the previous chapter the attempts that have been made in the earlier surveys of instruction to describe the teaching in the classrooms and their limitations were discussed. In this chapter are summarized the various techniques that have been devised by those whose purpose it is to make as accurate analyses and as complete descriptions of classroom practice and activities of both teacher and pupil as possible. The techniques are grouped into three general classes: (1) techniques stressing the pupil; (2) techniques stressing the teacher; (3) techniques in which the lesson as a unit is considered from a variety of angles.

In the discussion, the chapters in the remainder of the year-book which amplify any of the methods that are described are indicated. In these chapters whatever data are available concerning the reliability or validity of the several methods can be found.

#### I. TECHNIQUES STRESSING THE PUPIL ELEMENT

##### 1. Measurement by standardized tests.

The results of standardized survey tests of intelligence and achievement give the supervisor quantitative information of great value concerning various aspects of the school population. They are tools<sup>1</sup> the use of which has stimulated a vast amount of activity among supervisors and teachers, resulting in adaptations of methods of teaching, content of the curriculum, and schemes of classification to the capacities of the pupils. Refinements in the statistical manipulations of the results have developed methods of stating results of tests in various subjects in common units, such as ages, *t* scores, and similar units. Diagnostic tests

<sup>1</sup> Knight, F. B., "Possibilities of Objective Techniques in Supervision." *Journal of Educational Research*, 16: 2 (June, 1927).

in various subjects have enabled the teaching group to locate specific weaknesses of pupils and classes. The construction of effective remedial exercises has been a direct result of the work with these diagnostic instruments.<sup>2</sup> The organization of materials in textbooks has been materially affected by the results of scientific investigations in which standardized tests have played an important part.

The data contributed by educational tests are relatively meager when compared with the whole range of desirable educational outcomes. The results of these tests reveal the achievement of pupils as measured by the amount of factual knowledge they have acquired, or by the level of certain formal skills such as rate of reading, speed of writing, speed of computation, ability to spell certain lists of words, and similar skills. In many schools an increasing amount of stress has been placed on the results of such tests, and teaching procedures and the organization of subject matter have been modified accordingly. It is, therefore, important that an effort be made to develop methods of measurement that emphasize those good features of instruction that are not evaluated by our tests of achievement or intelligence, such as the extent of the development of socially desirable attitudes, ideals, purposes, points of view, and appreciations.

In the past few years fairly successful attempts have been made to develop instruments<sup>3</sup> for measuring such apparently intangible outcomes of education as character traits, conduct, attitudes, and ideals. The application of these methods as a means of measuring the results of classroom teaching will supply the supervisor with a rich body of information, emphasizing the importance of the consideration of a set of educational outcomes almost wholly ignored or "suppressed" by present tests of results.

## 2. Activities of pupils.

The consciousness of supervisors that many important aspects of educational outcomes were being neglected has led to the

<sup>2</sup> Brueckner, Leo J., Anderson, C. J., Banting, G. O., and Merton, Elda, *Diagnostic Tests and Remedial Exercises in Arithmetic, Grades III-VIII*. John C. Winston Company, 1928.

<sup>3</sup> May, Mark A., and Hartshorne, Hugh, *Studies in Deceit*. Macmillan Company, 1928.

Watson, J. W., *Experimentation and Measurement in Religious Education*. Association Press, 1927.

Haggerty, M. E., "Character Education and the Scientific Method." *Journal of Educational Research*, April, 1925.

development during the past two decades of methods of analyzing the activities of pupils both in and out<sup>4</sup> of school, especially during recitations. The necessity of defining educational outcomes in terms of desirable social traits,<sup>5</sup> ability to participate in desirable forms of social activity, the listing of desirable attitudes, etc., contributed to the same end. The presence or absence of those activities, traits, or attitudes could be detected by an observer in the classroom. It was a short step to proceed at once to the *recording of the number of times* each item was observed, thus supplying information of a quantitative type *describing* existing conditions. The collection of similar data in a variety of places and under varying conditions led to the *making of comparisons*. The necessity of *evaluating* the data secured has led to the experimental study of the factors affecting conditions in the classroom. Where data based on scientific study have been lacking, it has been necessary to depend on the combined judgment of the authorities in any field. It is, of course, true that the evaluation of any part of factual data is profoundly affected by the biases, attitudes, prejudices, and predispositions of those making the appraisal. The studies that have been made in this field have had for their purpose the answering of such questions as: (1) the number and quality of questions<sup>6</sup> asked during a lesson as an index of the efficiency of teaching; (2) the extent and quality of the participation<sup>7</sup> of pupils of different abilities in the recitations; (3) the comparison of activities<sup>8</sup> of pupils of different mental levels under different methods of teaching; (4) the rating<sup>9</sup> of the teacher according to the quality of the activities of the pupils; (5) the attempt to collect activities<sup>10</sup> of pupils which characterize the work of the inferior or superior

<sup>4</sup> Collings, Ellsworth, *An Experiment with a Project Curriculum*, Chapter IV. Macmillan Company, 1923.

<sup>5</sup> Haggerty, M. E., "The Incidence of Undesirable Behavior in Public School Children." *Journal of Educational Research*, Sept. 1925.

<sup>6</sup> Stevens, Romlett, *The Question as a Measure of Efficiency in Instruction*. New York: Teachers College, Contributions to Education, No. 48.

<sup>7</sup> Horn, Ernest, *Distribution of Opportunity for Participation Among the Various Pupils in Classroom Recitation*. New York: Teachers College, Contributions to Education, No. 67.

<sup>8</sup> Paulu, E. M., "Pupil Activities Under the Problem Method." Unpublished Master's thesis, University of Minnesota Library, 1926.

<sup>9</sup> Collings, Ellsworth, "A Conduct Scale for the Measurement of Teaching." *Journal of Educational Method*, 6: 97-103 (November, 1926).

<sup>10</sup> Puckett, Roscoe, "Making Supervision Objective." *School Review*, March, 1928.

teacher; (6) a comparison of the activities of pupils under such widely different plans of instruction as the Winnetka<sup>11</sup> and the conventional teaching procedure.

The data for these investigations have been secured in a variety of ways. Some investigators have made careful analyses of stenographic reports of lessons, others have visited the classrooms and made a record of the items which were to be checked for as the lessons proceeded, others asked for a report by the teacher in which the judgment of the teacher with respect to various items was given.<sup>12</sup> The devices for recording activities in the classrooms have ranged from simple blanks on which only a single factor, such as the number of questions asked, was recorded to a blank on which practically all types of items concerning the individual pupil that the observer wished to check for could be recorded by means of a code of symbols. The extent of the lists of activities to be checked is determined by the information that the observer wishes to secure. He may check for a very narrow range of items,<sup>13</sup> such as the number of voluntary contributions made by pupils, the number of times pupils made recitations in complete sentences, and similar data; or he may check for as wide a range of items<sup>14</sup> as he possibly can, so that he may secure data which he can subsequently analyze and study. The purpose of the analysis will determine its scope.

The difficulty with these devices is that they usually give a record of the fact that a certain number of questions was asked or answered, or that reports were made by pupils, but contain no evaluation of the quality or value of the response or activity, or its contribution to the lesson. Some attempts have been made to devise methods of evaluating activities by labeling them "successes" or "failures," classifying the activities according to type, for example, listing questions as: *why, who, when, fact*, etc., or rating them as *good, fair, or poor*. All of these methods have obvious limitations, since investigations have shown that there is little agreement among observers of activities as to their relative value or quality because there is no common standard

<sup>11</sup> Washburne, C. W., Vogel, M., and Gray, W. S., *A Survey of the Winnetka Public Schools*, 1926. See also Chapter IV, this volume.

<sup>12</sup> Charters, W. W., and Waples, Douglas, *Commonwealth Teacher Training Study*. University of Chicago Press, 1929.

<sup>13</sup> Collings, Ellsworth, *School Supervision in Theory and Practice*, Chapter II.

<sup>14</sup> Unpublished material by A. E. MacQuarrie, Principal, Washburn High School, Minneapolis, Minn.



as the basis of comparison. The attempt to limit the list to *observable* activities has also resulted in the omission of many aspects of a lesson which are not observable and are not manifested to the observer by any outward sign.

Data concerning the reliability and validity of such procedures are found in Chapters XIV-XVII.

### 3. Psychological factors, such as attention, errors, etc.

Interest in the lesson as evidenced by the attention of pupils is commonly considered to be an index of the quality of teaching. Such statements as "Are pupils interested?" or "the amount of interest," or "evidences that pupils are interested," are found in many of our teacher-rating devices. The supervisor records such generalizations as *Yes*, or *No*, or *much*, *little*, or *none*, or merely checks the item in some manner to show that it has been considered. Such records are wholly inadequate and unsatisfactory. Morrison<sup>15</sup> has devised a technique for securing a group index of attention<sup>16</sup> that is much more reliable and objective than the usual method. A modification of Morrison's "attention" technique, which has been developed in Minneapolis, makes it possible for the observer to chart the attention of the individual pupils in a class as a whole, thereby showing the variations in attention and locating pupils with bad habits of study, who may require some form of individual treatment and investigation. These plans and data concerning their reliability and validity are described in Chapter III.

In the primary grades surveys of classes quickly reveal the number of cases of lip movement in reading, counting in arithmetic, faulty positions in writing, defects in vision and hearing, and other difficulties of a physical or pedagogical nature.<sup>17</sup> The extent of their prevalence will determine the character of the supervisory program.

### 4. Opinions of pupils.

Numerous curricular studies have been made by securing from pupils their evaluation of materials of instruction in literature,<sup>18</sup>

<sup>15</sup> Morrison, H. L., *Practice of Teaching in the Secondary School*, Chapter VIII. University of Chicago Press.

<sup>16</sup> Bjarnason, Loftor, "Relation of Size of Class to Control of Attention." *Elementary School Journal*, 26: 36-42.

<sup>17</sup> Bennett, Henry E., "A Study of School Posture and Seating." *Elementary School Journal*, 26: 50-57.

<sup>18</sup> Crow, C. S., *Evaluation of English Literature in the High School*. New York: Teachers College, Contributions to Education, No. 141, 1924.

general science,<sup>19</sup> vocational education,<sup>20</sup> and others. Indirectly the supervisor can infer from the reactions of pupils the results of the work that is done in the classroom. If the reactions are not those that the work was expected to secure and are of a negative character, it is clearly the duty of the supervisor and teacher to investigate the reasons and to make modifications in the content of the work covered and possibly in the method of teaching that will yield positive results.

#### 5. Attitudes of pupils.

Connor,<sup>21</sup> with the help of his teachers, listed evidences or "concrete acts" by which the supervisor can evaluate the work of the teacher in terms of seven different standards; for example, the "initiative of the pupils in socially significant situations" is defined as follows:

#### INITIATIVE IN SOCIALLY SIGNIFICANT SITUATIONS

1. Asks questions worth while for the whole group to answer.
2. Proposes problems essential to the progress of the group in the subject at hand.
3. Examines material in advance so as to be of service to the teacher and the class in laying out the work for the following day or week; i.e., assists actively in making the assignment.
4. Volunteers information, and makes helpful suggestions in the course of the recitation.
5. Seizes upon class problems for further reading or experiment.
6. Prepares to contribute intelligently, and offers promptly and eagerly to keep the topic, question, or problem going during the recitation.
- [Note: Many recitations make one think that teaching, like mining (or dentistry), is an extractive industry.]
7. Call attention to current literature, discoveries, inventions.
8. Proposes for group decision the game to be played during the play or language periods.
9. Proposes changes in games and discusses the changes with teacher and pupils.
10. Is not idle when assigned work is finished, but finds useful work to do.
11. Discovers his weak points and practices to overcome them.

<sup>19</sup> Pollock, C. A., "Children's Interests as a Basis of What to Teach in General Science." *Educational Research Bulletin*, Ohio State University, Vol. III, No. 1 (January, 1924).

<sup>20</sup> "Pupils' Vocational Choices as Determined by Reactions to Vocational Courses." Unpublished report prepared by the Research Bureau, Board of Education, Minneapolis, Minnesota.

<sup>21</sup> Connor, W. L., "A New Method of Rating Teachers." *Journal of Educational Research*, May, 1920, p. 338.

12. Does many useful things without being told.

13. Asks for needed information or suggestions when his own resources fail.

He gives similar "concrete acts" for each of the following standards: (1) morale, (2) emotional reaction, (3) self-control, (4) thinking, (5) knowledge and skill, (6) deportment. Connor believes that the rating of the teacher can best be given by evaluating the conduct of the pupils. This rating is made possible when desirable traits are listed in the form of simple, observable, definite items.

Herring<sup>22</sup> has suggested the basis of evaluating teaching by means of 29 criteria consisting in large part of descriptive factors, such as "intensity of drive," "persistence of drive," "desire to coöperate," "sense of need," etc., which would be measured by "— tenths of the group coöperating adequately"; "constructive criticisms and suggestions given by — tenths of the group," etc. No reports of investigations using this procedure have been published, but the possibilities suggested by it are of great significance. In his report Herring gives explanations of each standard, illustrations, and lists of specific items to guide the observer in analyzing and evaluating the recitation. As he points out, it will be necessary to establish some measure of the reliability and significance of the items included. In any case the procedure will be very helpful as a device to assist teachers to analyze their work and also serve as a source of fruitful suggestions to those who wish to apply the criteria proposed by Dewey to the work in the classroom in such a way that the data secured can be treated statistically.

#### 6. Evaluation.

Studies of this type will give the supervisor and teacher a wide variety of factual information regarding the work in the classroom. The data enumerate the activities and in general describe the lesson much more definitely, as far as the pupils are concerned, than such sweeping generalizations as, "The pupils asked few questions," or "There were many failures," or "The lesson was an excellent one." The conference following a visitation can be kept impersonal and the question of changes that

<sup>22</sup> Herring, John P., "Educative Control by Means of a New Type of Measurement." *Journal of Educational Method*, 4: 94-103 (November, 1924).

may be desirable can be considered in the light of the quantitative information that has been secured. The interpretation and evaluation of the data obviously raise a long list of problems. What types of activities are desirable? Which are undesirable? What changes in method will bring about an increase in the number and quality of desirable activities? What qualities in the pupils produce the results that are secured? What factors condition their responses? Is the curriculum properly adapted to their abilities and interests? These and many similar problems will be answered in the light of the objectives that are to be achieved. In the last analysis the judgment of the individual teacher and supervisor must determine the use to be made of the data that are secured in a particular situation.

## II. TECHNIQUES STRESSING THE TEACHER

### 1. Activities of the teacher.

The methods of analyzing the activities of the teacher in a quantitative way are similar to those that are used for analyzing the activities of the pupil and are subject to the same limitations. For example, we can record the number of questions asked by the teacher but we have no answer to the question, "How many questions should a teacher ask?" The number will to some extent be determined by the nature of the lesson, the purpose of the lesson, the stage of advancement of the class as a whole, and many other factors.

Stevens made a study of the question as an index of the efficiency of the recitation in high school classes. Her procedure was to determine the number of questions that were asked by teachers and pupils during a single recitation. This was done by analyzing stenographic reports of a group of lessons and by recording the number of questions that were asked during a group of observed lessons. She analyzed 20 stenographic reports, 100 random observations, and 10 observations of selected classes followed for a day. The results of her investigation revealed some significant facts. Table I shows the ranges in the number of questions asked in single recitations.

The total numbers of questions asked in ten classes that were each followed for a whole day were 516, 372, 348, 411, 372, 338, 417, 483, 370, and 328. The range was from 321 to 516 questions in one day.

TABLE I

	RANGE		RANGE
English .....	23 — 200	Science .....	0 — 122
Latin .....	42 — 122	Modern Languages	0 — 176
History .....	41 — 142	Mathematics ....	35 — 165

Miss Stevens' conclusions based on this analysis were as follows:

1. The large number of questions suggests the maintenance in the classroom, for considerable portions of time, of a highly strung nervous tension, where there should be natural, normal conditions. The teacher who has acquired the habit of conducting recitations at the rate of from one hundred to two hundred questions and answers per classroom period of forty-five minutes has truly assumed the pace that kills.

2. The large number of questions suggests that the teacher is doing most of the work during the class hours instead of directing the children in the doing. One reason why one hundred and fifty questions can be asked in forty minutes is due to the fact that the teacher can think more rapidly and talk more rapidly than his pupils, and so, in order to cover a large amount of subject matter, he carried the trend of the lesson through his questions, the pupil merely punctuating the series with short answers from the text.

3. The large number of questions suggests that whenever teachers, either individually or collectively, preserve such a pace for any length of time, the largest educational assets that can be reckoned are verbal memory and superficial judgment. It is quite obvious that with the rapid-fire method of questioning there is no time for the pupil to go very far afield in his experience in order to recall or associate ideas in fruitful ways. He is called upon merely to reflect somebody else in small and carefully dissected portions, or to give forth snap judgments.

4. The large number of questions suggests that there is no time in the mechanics of the schoolroom to cultivate the gentle art of expression . . . The only way to develop powers of speech is to give opportunity for their exercise under skilled guidance.

5. The large number of questions suggests the thought that there is little thought given to the needs of the individuals. The teacher sets the pace in his questioning; the pupils follow as a body, or drop by the wayside. When pupils become interested in their work and begin to think for themselves, it is very natural for them to ask questions, and they will do it invariably if allowed to do so.

6. The large number of questions suggests that we are coming more and more to make the classroom the place for displaying knowledge instead of a laboratory for getting and using it.

7. The large number of questions suggests that in actual practice there is very little effort put forth to teach our boys and girls to be self-reliant and independent mental workers.

A large number of questions (barring modern language and developmental lessons) is a valuable indicator, a prominent symptom of bad instruction. While number is not the full measure, it is a very large factor in estimating efficiency, larger probably than any other single factor. . . . A small number of questions does not necessarily indicate good teaching.

As has been pointed out, the enumeration of such data assists us to describe and define conditions as they exist and to make comparisons with similar data. Our evaluation of the data is determined by our attitudes, points of view, prejudices, and philosophy of education. Discussions<sup>23</sup> of the reliability and validity of data secured in this manner are given in Chapters XIV and XV.

## 2. Difficulties of teachers.

There should be no question as to the value of securing from teachers statements of their difficulties and the preparation of materials, demonstration lessons, bulletins, etc., to assist teachers to solve their problems. In the Minneapolis supervisory program on work reading,<sup>24</sup> teachers and principals were asked to submit to the Research Bureau questions about the subject under consideration. Many problems were raised. A summary of the application of a similar procedure to recreational reading is given in Chapter XX.

Betts<sup>25</sup> reports a similar study of teachers' difficulties in which he presents a rating of each difficulty computed in terms of the reactions of the teachers. Waples<sup>26</sup> has developed a technique for assisting teachers to overcome their difficulties by compiling suggested solutions to various problems in convenient form for reference by teachers.

In a report of an investigation of difficulties in the teaching of reading reported by teachers in Illinois, Monroe<sup>27</sup> makes the following comment, which probably applies to other studies of a similar nature:

<sup>23</sup> See also Barr, A. S., "The Teaching Performances of Good and Poor Teachers of the Social Studies in Junior and Senior High School." *Bureau of Research Bulletin*, Department of Education, University of Wisconsin, 1927.

<sup>24</sup> "Technics and Evaluation of a Supervisory Program in Work Reading." *Minneapolis Educational Bulletin*, No. 12, May, 1927.

<sup>25</sup> Betts, G. H., "Teachers' Diagnosis of Classroom Difficulties." *Elementary School Journal*, April, 1927.

<sup>26</sup> Waples, Douglas, *Problems in Classroom Method*.

<sup>27</sup> Monroe, Walter S., "Teachers' Difficulties in Reading and Their Correctives." *University of Illinois Bulletin*, Vol. XXII, No. 30, March, 1925.

The one outstanding limitation of the investigation was the inability of teachers to analyze and define their difficulties. Many teachers even asserted that they experienced no difficulties in teaching reading; others were able to mention only difficulties in general terms, some of which applied more to classroom management than to the teaching of reading.

### 3. Errors in Procedure.

Breed has proposed that supervisors should check the work of the teacher by making note of the errors in the teaching procedure (see Chapter VI). The basis of labeling any practice as an error would be either the results of experimental work in that subject<sup>28</sup> or, if scientific evidence of that type was lacking, the combined judgment of experts in the teaching of the subject under consideration.

At the present time there is available a large body of scientific information as to the efficiency of various methods of teaching, some of it contradictory, some of it in agreement as to the value and desirability of certain teaching procedures. If, as Breed suggests, this information could be assembled in an organized way, it might help to eliminate some of the incorrect teaching procedures. However, the supervisor must always be ready to modify the list of errors in procedure in the light of scientific evidence that is produced by research and experiment. The difficulty with the technique suggested by Breed is well expressed in the statement by Hudelson:<sup>29</sup>

There are two general techniques of supervision. One is didactic. Under this system the supervisor simply tells a teacher how to teach. What he tells he probably received from his supervisor, who in turn heard it from his. There is no surer way of perpetuating educational dogma, for such a system is almost certain to ignore the changes in social conditions which call for educational adaptations. Such a supervisor may, however, base his didacticisms on opinions gathered from his own untested experiences or observations. If he has abundant common sense and is a shrewd observer, many of his opinions will probably be sound; but those that are wrong may be as wrong as sin. Until we know more about best methods of teaching than we know now, didactic supervision is presumptuous.

The most significant fact about the attempts that have been made to collate the results of experiments on methods of teaching is the lack of general, consistent tendencies. Horn and his associates, for example, per-

<sup>28</sup> Brueckner, Leo J., "Diagnostic Analysis of Classroom Procedures." *Elementary School Journal*, Sept. 1926.

<sup>29</sup> Hudelson, Earl, "Experimental Supervision." *Educational Supervision* (First Yearbook, National Conference on Educational Method, 1928), Chapter XV.



formed a most commendable and needed service in listing the important functions of teaching and in assembling the available evidence on best ways of performing those functions.<sup>20</sup> On many functions there was, and still is, no substantial evidence to report. On many of the others the evidence is avowedly either so meager, so empirical, or so conflicting that any but tentative conclusions would have been tenuous. Is it the part of modesty for supervisors to step in where these educational scientists wisely feared to tread?

#### 4. Evidences of Skill.

The efforts to improve teacher-rating plans and to make supervisory activities more helpful have resulted in investigations in which attempts have been made to list the characteristics of teaching that are evidences of teaching skill, their lack therefore being evidence of lack of teaching skill. Monroe<sup>21</sup> and Bamberger<sup>22</sup> both secured lists of characteristics of teaching which, in the *judgment* of the group of principals, teachers, and supervisors consulted, evidenced teaching skill. Monroe attempted to limit his list to "observable" characteristics which could be made the basis of quantitative treatment. Bamberger's list of "factors" is more indefinite and general in character and does not lend itself as readily to quantitative treatment in its present form. Many of the items could be restated in such a way that they could be treated statistically. As they now stand they can be made the basis of many valuable, suggestive discussions. Bamberger's list is more comprehensive than Monroe's because she did not limit herself to observable traits which could be studied statistically in the classroom in preparing her list of factors.

Other groups of individuals might list entirely different sets of evidences of teaching skill because of a different concept of method, or because of a different set of educational objectives. For example, a group of persons believing in the old type of teaching on the compulsion level would compile a list of items probably quite different in character from one prepared by those using the Winnetka materials for individualizing instruction or the project method of teaching.

<sup>20</sup> *Eighteenth Yearbook, National Society for the Study of Education, Part II, 1919.*

<sup>21</sup> Monroe, Walter S., "Observable Characteristics of Efficiency in Teaching." *Elementary School Journal*, Sept. 1925.

<sup>22</sup> Bamberger, Florence, "A Survey of Observable, Improvable Characteristics Which Evidence Skill in Teaching." *Elementary School Journal*, November, 1927.



### 5. Methods of teaching.

In *Educational Supervision*,<sup>33</sup> data were presented showing the possibilities of making surveys of the methods of instruction used by the teachers and the skill with which they used particular methods. In brief, the point was made that teaching methods in general can be classified into four general types, each stressing a different group of educational objectives or outcomes. The types were named by Curtis<sup>34</sup> as (1) compulsion, (2) teacher preparation, (3) motivation, and (4) purposing. Each type is practically defined by its name. Teachers vary widely both in the general method that they use and in the skill with which they teach. They must therefore be rated according to the skill with which they use a particular method. This is especially important in experimental work. Standardized scales,<sup>35</sup> consisting of descriptions of lessons in the teaching of geography arranged in decreasing order of merit as judged by large groups of supervisors, have been prepared for the purpose of increasing the reliability and accuracy of the ratings given for skill. Data concerning the teaching in a number of schools were presented showing that there is a wide variation in both method and skill from school to school and among teachers in the same building. The use of this scale technique by a number of trained observers makes it possible for the supervisor to conduct as comprehensive a survey of teaching as is desired and to secure a picture of the general status of teaching in the schools that is apparently a very reliable one. Weak spots in teaching are revealed. Accurate, meaningful comparisons can be made between the work of teachers and more reliable interpretations can be made of the results secured by different methods of teaching. By adaptations of this procedure, experiments can be conducted more satisfactorily because a variable usually uncontrolled, namely, the difference in skill in teaching, can be defined more accurately and therefore more carefully controlled. By means of the scales the teachers can rate themselves. An analysis of the lessons rated high in the scales will reveal the characteristics which to supervisors suggest teaching skill.

There is practically nothing known of an objective, quantita-

<sup>33</sup> First Yearbook, National Conference on Educational Method, 1928.

<sup>34</sup> Unpublished statement.

<sup>35</sup> Brueckner, Leo J., "Scales for the Rating of Teaching Skill." *University of Minnesota Research Bulletin*, No. 12, February, 1927.

tive character as to which methods of teaching secure the best results. It seems reasonable to assume that there must be great differences in the character of the results since each type is striving to secure widely differing outcomes. The choice of the method to use in a particular situation will be determined by the objectives that are to be achieved. A survey of the type outlined above will reveal to the supervisors and teachers just what current practice is and will suggest the kinds of supervisory activities needed to change conditions. Scales are needed for the teaching of all subjects to supplement those that have been developed for geography.

#### 6. Trade Tests.

Various tests<sup>36</sup> have been standardized by means of which the supervisor can secure data as to the range of information and the important concepts teachers have concerning various educational subjects. An analysis of the results of such tests should reveal erroneous concepts. If reliable "trade tests" can be developed which correlate well with a valid criterion of skill, a valuable tool will have been added to the equipment of the supervisor.

### III. TECHNIQUES STRESSING VARIOUS ELEMENTS IN LESSONS

#### 1. The time allotted to subjects and phases of lessons.

Studies of the time allotments<sup>37</sup> of various cities and of schools in the same city reveal great variations in the amounts of time allotted to the various subjects. Similarly the amount of time given to various phases of a class period vary widely (see Chapters IX and X). The extent of this variation has raised many supervisory problems and is a condition which should be considered in every community and school. In making studies of this kind reports of the distribution of time can be secured from the teacher himself, or the observer of the lesson can make the analysis as the work in a lesson proceeds.

#### 2. Nature and order of the activities in a lesson.

A technique which makes it possible to analyze the characteristics of each phase of a supervised study period is described in Chapter X. Any principal who wishes to secure a picture

<sup>36</sup> Knight, F. B., Bathurst, and Ruch, J. M.

<sup>37</sup> Brueckner, Leo J., "A Study of Time Allotments in the Minneapolis Elementary Schools." *Journal of Educational Method*, 6: 282-287 (March, 1927).

for his teachers of their use of the class period under the supervised study plan during a particular period of time, say a week, will find the device described a most helpful one.<sup>38</sup> The facts revealed by the study, as is pointed out by Powers, will raise many problems and can be used as the basis for significant future studies by the group as a whole.

### 3. Objectives of lessons.

In connection with the supervisory program of work reading conducted in Minneapolis,<sup>39</sup> a survey of lessons in the teaching of reading was conducted. The basis of the survey was a comprehensive list of the objectives that might be set up for the teaching of work type reading. Principals observed lessons in work reading and reported the objective of each lesson. A summary of the reports gave a picture of the general status of the teaching of reading in the city in grades 3 to 6, at the same time giving principals valuable training in the analysis of lessons. The results of the study were made the basis of a follow-up program which is described in an educational bulletin. After the follow-up program a second survey was made using the same tools. A comparison of the results of the two surveys revealed a considerable change in the objectives of the lessons observed by the principals, a change which may, in part at least, be ascribed to the supervisory program.

Similar programs could readily be carried out in arithmetic, the social studies, physical education, and other subjects in the curriculum. This would necessitate the analysis of the objectives of these subjects, which would clarify them for the whole school.

### 4. Levels of teaching.

How is reading being taught in our schools? Observations of the work of our teachers suggest that there are many different levels of activities in the teaching of reading. Descriptions of these levels on a fairly well graduated scale may help the supervisor to locate the level which best describes the work of the school. The notion of *levels* here given is based in part on a

<sup>38</sup> Koos, L. V., and Troxel, O. L., "A Comparison of Teaching Procedures in Long and Short Class Periods." *School Review*, May, 1927.

Brueckner, L. J., "The Value of a Time Analysis of Classroom Procedure as a Supervisory Technique." *Elementary School Journal*, March, 1925. See also, Brueckner, Leo J., "A Survey of the Use Made of the Supervised Study Period." *School Review*, May, 1925.

<sup>39</sup> Brueckner, *op. cit.*

discussion of the results of investigations of the teaching of reading by Dr. W. S. Gray. The following descriptions begin with activities and objectives that are narrow in scope and proceed to descriptions of activities of an enriched type with broad objectives. No survey has been reported in which the technique here suggested has been used. It is published because of its suggestiveness as a basis for determining the level at which the teaching of reading in any school is being conducted.

#### LEVEL 1 \*

The teacher emphasizes the mechanics of oral and silent reading by having the pupils read aloud or silently and testing their comprehension of what is read. The objectives of the teaching are to develop the ability to read at a desirable rate, to pronounce the words correctly, and to understand what is read during the reading period. The content of the material read is limited to the textbook. The more scientifically the test is organized, the greater is the possibility that the teacher is securing valuable results.

#### LEVEL 2

The teacher has a broader concept of objectives than the teachers in level 1. In addition to developing the ability to read aloud in a satisfactory way and to comprehend what is read orally or silently, the teacher stresses the development of the abilities and skills involved in work reading. This broader concept of objectives includes the ability to locate material quickly, to organize what is read, and to summarize what is read. Some attention is given to dramatization and to various methods of enriching the mechanical phases of the work. The class is dealt with as a whole and no specific attention is given to remedial and diagnostic work. No attempt is made to create interests in reading in other subjects, but there is a definite effort to bring the pupil into contact with a variety of reading material in textbooks which contain both literary and factual selections.

#### LEVEL 3

The activities are in general similar to those on the second level. However, in addition to these the teacher makes definite provision for diagnostic and remedial work for pupils who are encountering difficulties. There are many adjustments of the work to provide for individual differences. The subject matter used in the reading period is limited to the regular textbooks in reading and in content subjects which may contain both factual and literary material. No definite attempts are made to broaden the pupil's reading interests, and recreational reading is neglected.

#### LEVEL 4

This teacher has in mind the broader concept of reading objectives of the teacher at level 3 and also provides for diagnostic and remedial work.

\* Descriptions of levels prepared by L. J. Brueckner.

The teacher differentiates the work according to the capacities of the pupils. In addition to this a definite attempt is made to correlate the work of the reading period with the work in other subjects and to develop the necessary abilities required to carry them on satisfactorily. This teacher believes that the teaching of reading should not be limited to the regular reading period and does not hesitate to teach reading in other periods when the need arises. Stress is placed chiefly on the abilities needed in the work type of reading, and pupils are given some training in reading literary material through the directed study of selections from suitable books. No attempt is made to encourage voluntary reading of a recreatory type, either in or out of school.

#### LEVEL 5

This teacher carries on all of the activities of the teacher at level 4, but in addition stresses recreatory reading. No attempt is made to relate the recreatory reading to the content subjects. A definite effort is made to arouse an interest in free, unassigned reading outside of school. This teacher believes that pupils should be encouraged to read whatever they may wish, regardless of the contribution that may be made to the work being done in the school in any other subject. This results in a diffusion of interests and effort rather than in a focusing of attention on organized fields of subject matter.

#### LEVEL 6

This teacher develops an enriched program of oral and silent reading activities of the work type, makes adequate provision for remedial work, and in addition to this makes a definite attempt to relate the recreatory reading to the work in the content subjects. The teacher believes that organizing the reading in such a way is an economical procedure, since the child's recreational reading contributes to the achieving of the purpose of the school. Provision is also made to encourage reading of unassigned material outside of school and to develop broad reading interests.

#### LEVEL 7

At this level the teaching of reading is organized on the basis of large units of study, prepared in detail by the teacher or prescribed by the course of study. Stress is placed on directed study, the development of necessary study habits, the correlation of work and recreatory reading, and the systematic consideration of large bodies of subject matter. The purpose of the teacher is to systematize the content of the material the pupil is to read and to develop the necessary skills, habits, attitudes, and appreciations in their natural setting. Provision is made for diagnostic and remedial work. Provision is also made for free reading of unassigned material to be read voluntarily by the pupil either in or out of school. The tendency clearly is to break down the compartmentalized subject organization. However, the stress is primarily upon the acquisition of a body of subject matter, and the development of attitudes, ideals, and desirable types of

behavior is subsidiary. The latter may be an expected outcome of the former, but no attempt is made to provide for this directly.

#### LEVEL 8

On level 7 the organization of the subject matter is controlled by the teacher and all pupil activity is directed by the teacher. On level 8 provision is made for active pupil participation in the selection of the content of the reading work and in the organization of the subject matter to be covered. Pupils and teacher cooperate in determining the character of the reading activities to be engaged in by the class. Little attention is paid to the traditional subjects of the curriculum. The basis of the organization of subject matter is the belief that problems, topics, and subject matter of all kinds should be within the interest of pupils. The basis of the method is the belief that pupils should learn in natural situations such as they encounter in life itself, so that self-control, self-direction, self-appraisal, and the ability to cooperate in groups may be a natural outgrowth of the work that is done.

#### 5. Check lists.

Numerous blanks are now available containing items pertaining to a lesson which can be "observed," that is, they are items that aid an observer in analyzing in an objective way the work of the lesson. Some of the blanks state the items in the form of "yes-no" questions, others begin the questions with "How many?" or "The number," and others merely list items to be considered.<sup>40</sup> All of these blanks aid the observer more or less in his analysis of the work. The more specific and definite the item<sup>41</sup> the more definite can be his information about the lesson. Some of the blanks are too long for use in any one lesson. However, the observer can use any part or parts of them that he chooses, or make any selection of items that he wishes as the basis of his analysis. The inexperienced, untrained supervisor will find these check lists very helpful and suggestive. As he develops skill in analysis he can discard such portions of the lists as he wishes or develop a new list of items which he finds helpful.

#### 6. Type lessons.

Descriptions of type lessons are found in many educational magazines. In any locality the supervisor can request outlines or descriptions of lessons that possess merit. Special blanks for this

<sup>40</sup> Barr, A. S., *Elementary School Standards for the Improvement of Teaching*. Ann Arbor, Mich.: Edwards Brothers.

<sup>41</sup> Schoonover, A. S., *A Study of the Objectivity of a Teacher's Check List*. Master's thesis, University of Wisconsin, 1927.

purpose facilitate the procedure. These reports <sup>42</sup> can be compiled and made available for all teachers. The better the quality of these lessons is, the higher the level of teaching in a system is likely to be (see Chapter XX).

#### 7. Materials used in lessons.

Reports or exhibits of materials used in lessons <sup>43</sup> will show teachers the high quality of work done by some classes and suggest to them many possibilities. For example, in Minneapolis teachers were each asked to submit five arithmetic problems which they considered to be of a superior quality. These were then analyzed, edited, and published for teachers' use (see Chapter XX).

Effective drill exercises, graphs, seat work lessons, and similar materials can be collected and evaluated in the same way and made available for all teachers.

#### 8. Instructional handicaps.

Supervisory officers are often not conscious of instructional handicaps which interfere with the efficiency of instruction. In Chapter XI Betts describes a useful device by means of which the supervisor can quickly secure information from the teaching group as to the handicaps that exist. Their elimination is often a very simple matter.

### SUMMARY

The procedures that have been briefly described in this chapter are used in various ways, depending on the purpose of the supervisor.

Some of the techniques are adapted to the securing of descriptive information on a large scale concerning the teaching in the schools. While with the conventional methods of visitation and observation the supervisor has no economical, reliable, effective means of collecting such factual information for a large number of teaching situations, the techniques here described supply such tools. At present the types of information that are secured consist largely of reports of specific, "observable" activities of teachers and pupils. As has been pointed out, these data give a relatively

<sup>42</sup> See *Minneapolis Educational Bulletin*, No. 7, 1925, for illustrative summary of lessons submitted by teachers.

<sup>43</sup> Stone, C. R., "Improving Reading Instruction in the Light of Current Practices in Grades 4, 5, and 6." *Fifth Yearbook, Department of Elementary School Principals*, Chapter XII.



narrow range of information about the total educational situations, since various important "non-observable" aspects of the recitation are entirely overlooked. In many places the latter aspect of the situation is being carefully studied with promising results.

The use of these techniques for making objective studies of classroom teaching on a large scale necessitates a training program to insure a fair degree of reliability and accuracy of the information reported by the various observers. In subsequent chapters in this book many of the procedures are described in detail and their applications illustrated. Before a supervisor undertakes to train a group of assistants in the use of any of the techniques, it is desirable that he be thoroughly familiar with it himself and that he shall have applied the technique to the particular problem or aspect of the educational situation that is being studied. In this way he will become conscious of difficulties or questions that may arise as the investigation in the several schools proceeds. It should be clear that no supervisor can hope to apply any of these procedures successfully without a careful study of the techniques involved, practice in applying them in the actual situation, and a clear understanding of the limitations of the method of securing data that are employed in the investigation.

Practically all of the procedures that have been listed are of great value in a study of the work of the individual teacher in single lessons. Many of them can be applied by the teacher himself in a very effective way. This fact is of primary importance since a teacher can analyze his work by checking it against a variety of criteria, and where obvious faults are apparent, modifications can be made by the teacher through choice. The techniques also assist the supervisor to make an accurate diagnosis of the teaching situation as a means of locating difficulties. To the extent to which the methods of analyzing classroom practices are accurate and are made more reliable and valid, to that extent the work of the supervisor can be made more helpful.

The application of similar objective techniques to the development of rating plans for evaluating the work of the teacher should result in the construction of much more valid and reliable instruments than are now available. The items in the scale would be expressed as far as possible in definite, specific, objective terms which would be so clearly defined that they would have the same



meaning for all persons whose duties included that of rating the teachers. The important problem of determining the factors or points that correlate with teaching success is one that is being investigated in many quarters. It seems probable that the plans for rating *teaching* must take into consideration the fact that at the present time there are many variations in both the general and specific methods of teaching and that teachers vary widely in the skill with which these methods are used. The concepts of method are determined in large measure by the educational outcomes that are to be secured, which in turn are reflections of the philosophies of the proponents of the various methods.

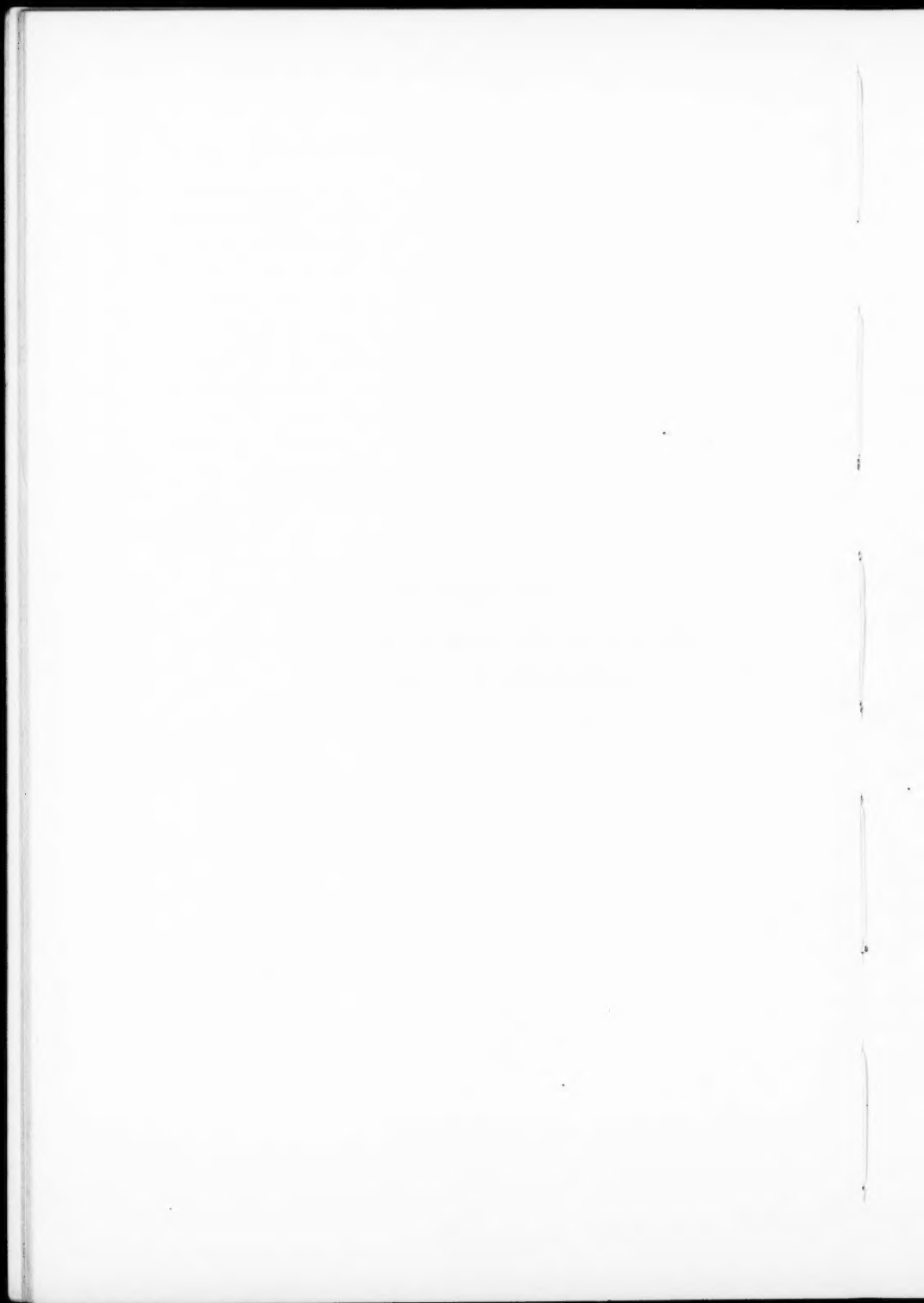
At the present time it is very difficult to evaluate the effectiveness of the various methods of teaching because of the many uncontrolled variables which tend to reduce the significance of the results of current experimentation. The application of objective techniques based on the principles underlying the procedures described in this book should make it possible to *describe* more accurately and therefore to control to a greater extent the actual teaching practices being investigated or evaluated. As Rankin points out in Chapter XVII, we can now control such factors in an experiment as the intelligence of the pupils, their ages, achievements, and similar elements by matching pairs. The problem is how to develop accurate, reliable methods of controlling the teaching activities that are being evaluated. Incidentally it should be pointed out that the effectiveness of particular teaching procedures should not only be measured by the growth of the pupils in knowledge, skills, or information acquired, but also be evaluated on the basis of comparative data concerning many of the educational outcomes which we at present are not able to describe in terms of observable, objective items, much less to measure in a quantitative way, such as changes in attitudes, increase in appreciations, growth in ability to study, and the like.

In brief the techniques described in this yearbook make it possible: (1) to *enumerate* various items concerning teaching in the classroom in quantitative terms; (2) to *describe* in a meaningful, objective way the quality of teaching either in one room or in a large number of rooms; (3) to *make comparisons* between conditions in a number of places; (4) to *measure the effectiveness* of the supervisory program in terms of the changes that are

produced in the educational situation; (5) to set up a program for *evaluating* teaching procedures and other conditions revealed by a survey of instruction.

A clear-cut distinction must be made between those supervisory activities which have for their purpose the *description* of current practices by an enumeration of certain facts and those which are involved in making an *evaluation* of these practices. At the present time our evaluation of the descriptions of teaching secured by means of these objective techniques should be determined by: (1) our basic educational philosophy; (2) the results of scientific studies of the teaching situation as far as these results have reliability and validity; (3) the composite judgments of educational experts when reliable data of any other kind are not available.

**SECTION TWO**  
**TECHNIQUES BASED ON ASPECTS**  
**RELATED TO THE PUPIL**



## CHAPTER III

### TECHNIQUES IN THE MEASURING OF PUPIL ATTENTION

CLARENCE E. BLUME

#### INTRODUCTION

"The foundation of any systematic technique of teaching must obviously be the establishment of a condition in the class group, and in the attitudes of the individual pupils who make up the group, in which the adaptations implied by the objectives of teaching become possible—one in which teaching can register. We shall call such a condition the *learning situation*. The major elements in the learning situation are *motivation* and *attention*. The two elements seem to be mutually related. There is not likely to arise a sustained attention apart from the establishment of motivation, and conversely no real motivation is possible without the development of capacity for voluntary attention to the subject matter of teaching and study."<sup>1</sup>

The discussion in this chapter will be limited to the *attention* factor in the learning situation.

There can be no effective teaching unless the pupils "are mentally attentive, not occasionally but continuously."<sup>2</sup> Teaching has to do with group instruction as well as supervision of individual study. If an instructor is presenting a new unit to the class, or is making an explanation, it is essential that, if the teaching is to register, the attention of the entire group be secured and held. On this point Morrison states, "Group attention is frequently ignored. Under the influence of the daily task theory of teaching, the teacher's mind is apt to be fixed upon hearing individual recitations rather than upon teaching. Not unnaturally, he overlooks the importance of securing and holding the undivided attention of every member of the group. The characteristic picture of such a situation is eager attention on the part of a few pupils,

<sup>1</sup> Morrison, Henry C., *The Practice of Teaching in the Secondary School*, p. 103.

<sup>2</sup> *Ibid.*, p. 107.

occasional attention on the part of a few others, and no attention at all on the part of a large percentage of the class. Obviously, a large waste occurs . . .

"Hence, neglect of the group-attention aspect of the learning situation means that group teaching has little or no effect. It registers only casually, and its results are seen later in the form of chance distribution. Obviously, mastery need not be looked for in the class as a whole."<sup>3</sup>

There are some pupils who have become adept at "getting by" in their work through occasional periods of attention in which they acquire the general drift of things. Some of these pupils come to advanced work later on with a poor foundation, and failure is frequently the result. The teacher who is not concerned as to whether his teaching is reaching all the pupils is largely responsible for the inattention in his classes. It is equally true that some pupils have not learned voluntary attention. They must be trained in that direction.<sup>4</sup>

Teachers and supervisors generally have always realized the importance of attention in any given learning situation. Heretofore, however, there was no method for measuring the attention of a group or of an individual, and remedial procedures were unknown after the attention score had been obtained.<sup>5</sup> Just as the measuring devices developed for some of the academic subjects have brought about increased achievement by centering the attention of teachers upon the deficiencies, so some adequate means of measuring the attention of a group or of an individual will result in increased attention. If attention is one of the two main factors in the learning situation, it behooves the schools to give it serious consideration. Considerable experimenting was done in the Wendell Phillips Junior High School during the spring of 1928 with the suggested procedures in measuring pupil attention as set forth by Dr. Morrison. The first of the techniques developed was that of measuring group attention.

#### GROUP ATTENTION SCORE

By the term *group attention score* is meant the percentage of actual pupil-minutes of attention of the group during the period

<sup>3</sup> Morrison, *op. cit.*, pp. 106-107.

<sup>4</sup> See p. 49, this article.

<sup>5</sup> The writer is indebted to Dr. Morrison for the clear exposition of principles involved in the value of and the method of securing the attention score.

of observation. The observer takes his place near the front, so he can see the faces of all the pupils and yet not be so conspicuous that his presence is a source of distraction. Even so, it may be necessary to visit the group a few times to accustom the pupils to his presence before an attempt is made to obtain the attention score. In the writer's experience this was not necessary in a single instance.

Assured that conditions are satisfactory, the observer notes the number of pupils out of attention at the beginning of each minute by running his eye up one row and down another. The minute-by-minute scoring is not difficult and has the advantage of greater precision. It was found convenient to employ a specially prepared mimeographed sheet, using both sides, with the minute intervals indicated. A sample of an actual scoring is given in Table I.

In the sample class situation cited, the observer started recording promptly at 9:03. The three-minute interval between 9:00 and 9:03 is allowed for the shifting of classes.

TABLE I  
A MEASUREMENT OF GROUP ATTENTION

Subject	History	Ability Grouping	Low	
Grade	8B4	Method Used	Morrison	
Number of pupils		34		
Write observations here:				
Study	9:00			
	9:01			
	9:02			
	9:03	1		
	9:04	4	playing	
	9:05	2		
	9:06	1		
	9:07	3	looking around	
	9:08	2		
	9:09	2		
	9:10	1		
	9:11	2		
	9:12	6		
	9:13	0		
	9:14	1		
	9:15	1		
	9:16	2		
	9:17	3		
Profile of one girl suggested. Has been out for some time and back only two days.				
Other very self-conscious.				

TABLE I—*Continued*

Subject	History	Ability Grouping	Low
Grade	SB4	Method Used	Morrison
Number of pupils		34	
Write observations here:		9:18	3
		9:19	2
		9:20	1
		9:21	0
		9:22	1
		9:23	2
		9:24	2
		9:25	4
Drill		9:26	0 change to drill
		9:27	1
		9:28	0
		9:29	1
Test		9:30	0 test began
Good shift from drill to test.		9:31	0
		9:32	1
		9:33	0
		9:34	0
		9:35	2
		9:36	2
		9:37	0
		9:38	1
		9:39	6
		9:40	3
Some finished, accounting for high inattention.		9:41	7
		9:42	6
		9:43	0
		9:44	1
		9:45	0
		9:46	5
		9:47	2
		9:48	2
		9:49	4
		9:50	0
Percentage of attention 94.4			

The question which the observer must be prepared to answer readily is, When is the pupil in attention? This usually requires practice until the observer can determine quickly whether the pupil is in attention or not. Morrison says:



He will find before long that he has attained considerable confidence in the snap judgments which he must thus make. In the ordinary class there are usually found three kinds of pupil situations with respect to our problems.

The large majority of pupils who are inattentive are obviously so. They are looking out of the window, conversing with neighbors, engaged in arranging their toilets, obviously dreaming, doing something which is clearly not connected with the work in hand.

Most of the pupils who are attentive are again obviously attentive. Eyes, physical posture, activities, leave the observer in no doubt. Everything speaks of the mind which is focused upon the work in hand, whether it be an explanation which is being presented by the teacher, the recitation of a fellow-pupil, or a piece of study upon which the pupil is himself engaged. These pupils of course represent the standard to which the group as a whole must be brought.

The observer's principal problem is with a third group, the pupils who are "listening with their ears but not with their minds." These pupils range from the prim little girl who sits erect, in perfect decorum, ready to react to any obvious stimulus, such as a question put by the teacher, to the lounging boy with head on hand sprawled over the top of the desk, whose hand moves listlessly and automatically whenever others' hands move. In sorting out the really attentive from this group, the observer will learn to depend much more upon his own experience than upon any precepts which can be laid down. Certain guide marks can, however, be suggested.

In the first place, in all but a few exceptional cases, the attentive child or youth has a characteristic physical attitude. His feet are usually drawn up beneath the chair, head slightly inclined forward, the whole body tense rather than relaxed. As the play of the mental situation develops, from the alert teacher to the responses of another pupil, eyes, head, and whole body follow the movement.

The almost infallible index of attention is the eye. Would that we could describe in precise terms the characteristics of the eye expression which tells of the alert and attentive mind! We can only advise the observer to note, confident that a brief experience will enable him to identify the signs with a degree of assurance which will give abundant help in arriving at a reliable approximate estimate of the amount of sustained attention found in a given class period.\*

The answer to the question, When is the pupil attentive? Morrison suggests is, attentive to what?

In general, to any situation in respect to which the observer wishes to measure attention. It may be a study period, a presentation or explanation, a class discussion, or a class period as a whole. In systematic supervision the last is properly the object to be measured, but with discrimination.

\* Morrison, Henry C., *The Practice of Teaching in the Secondary School*, pp. 119-120.

Good control technique presumes sustained attention to the work in hand, from the moment when the opening bell rings until that at which the closing signal is given. Nevertheless, it should be borne in mind that it is teaching technique which we are measuring and not merely the pupils' occupation. If a study period is evidently expected, then the object of attention is study. If the teacher is making a presentation to the class, presumably he requires the attention of the class to his words. If a pupil in that case keeps on studying, he is out of attention, even though he may be engaged in profitable study. If the work in hand is a recitation, it is presumably conducted on the theory that it is serviceable to the class as a whole; therefore a pupil who is attentive to something else than the recitation is out of attention.<sup>7</sup>

### RELIABILITY

The reader, doubtless, is wondering how reliable the attention scores are. In answering this question Dr. Morrison says:

How reliable is the score thus found? That is to say, How closely will two equally competent observers agree in their final estimate for the same class situation? It may be stated in answer that the process is not one of precision, and consequently absolute agreement between the scores of two observers is out of the question. If such occurs, it is to be attributed to accident.<sup>8</sup>

In developing the technique of observation, Dr. Breuckner, Professor of Education at the University of Minnesota, and the writer visited three different classes to obtain attention scores. Each scored independently. At the conclusion of the three trials it was found that the maximum difference in similar class scores was three points, while the minimum was one point. The result is shown in Table II.

TABLE II  
ATTENTION SCORES

CLASS VISITED	BREUCKNER	BLUME
First .....	98	97
Second .....	92	95
Third .....	93	95
Average, 3 Classes .....	94.3	95.7

In order to make a more comprehensive study of the reliability of attention scores, several advanced students of Dr. Breuckner's university classes were selected and after a period of practice

<sup>7</sup> Morrison, *op. cit.*, p. 121.

<sup>8</sup> *Ibid.*, p. 122.

and instruction were assigned to seventeen class situations, all in United States history. Three observers were assigned to two class situations and two to each of the remainder. Each scored independently. The results are shown in Table III, which is to be read as follows: In situation number 1, in the 8B2 class (in which the figure 2 indicates the section), observer A obtained a

TABLE III  
ATTENTION SCORES

CLASS SITUATION	CLASS	A	B	C
1	8B2	97.9	95.1	
2	8B4	96.6	97.5	
3	8B4	97.0	97.3	96.9
4	8B4	94.1	91.6	94.4
5	8B6	90.0	93.7	
6	8B6	96.7	96.5	
7	8B6	95.0	96.2	
8	8A6	97.0	97.0	
9	8A6	98.6	98.6	
10	8A6	97.8	97.5	
11	8A7	98.3	98.5	
12	8A7	98.6	98.4	
13	8A7	97.0	97.3	
14	8A8	98.0	98.0	
15	8A5	98.8	98.4	
16	8A8	98.4	98.2	
17	8A8	98.1	98.1	

score of 97.9, while observer B obtained a score of 95.1, a difference of 2.8. In situation number 3, observer A<sup>\*</sup> had a score of 97.0; observer B, 97.3; and observer C, 96.9. It is interesting to note that the maximum difference in any given situation was 3.7 in number 5, while in numbers 8, 9, 14, and 17, there was complete agreement. The evidence seems to indicate that once the technique has been learned, the attention scores thus obtained have a high degree of reliability.

#### INDIVIDUAL-GROUP ATTENTION SCORE

In securing what the writer has termed the individual-group attention score,<sup>10</sup> the same general procedure as outlined in

\* The score sheets were not signed by the observers, unfortunately, hence observer A in situation 1 may not be the same as in situation 2.

<sup>10</sup> Technique developed by Dr. Leo J. Brueckner, University of Minnesota.

recording group attention<sup>11</sup> is followed. The difference lies in the method of recording. Instead of the mimeographed score sheet as shown in Table I, a seating chart of the room, prepared in advance, is used. A sample scoring of an actual class situation is shown in Figure 1. On the left-hand side of the chart (Fig. 1) will be found the minute-intervals. The letters *A, B, C, D, E*, to the left of the time-intervals, indicate ten-minute intervals. For example, *A* indicates the interval from 9:20 to 9:29, inclusive; *B* from 9:30 to 9:39, inclusive, etc. At the beginning of each minute-interval the observer looks up one row and down another, noting which pupils are out of attention, indicating the ten-minute interval and the minute in that interval on the seating chart. Then the number recorded on the seating chart are counted as having been out of attention and written after the proper minute-interval on the left-hand side of the chart. If no pupils were out of attention, simply write 0 after the proper minute-interval. For example, in the sample given the observer found no one out of attention at 9:20, so recorded a zero after 9:20. At 9:21 he again observed and found pupil No. 33 out of attention, so recorded *A1* in 33's square, in which *A* indicates the ten-minute interval from 9:20 to 9:29, inclusive, and the figure 1 as 9:21. The figure 1 was then written after 9:21 as the total out of attention during that minute-interval. The same procedure is followed for each minute-interval of observation. The crosses on the chart indicate vacant seats. The attention score is found in the same manner as in the group attention score previously discussed.<sup>12</sup> The total number of pupils out of attention can be found by adding the column to the left of the chart (Fig. 1).

The advantages of this method of recording attention over the group attention<sup>13</sup> method are that it isolates the pupils contributing most to the inattention and indicates whether that inattention is scattered over several ten-minute intervals or is confined to certain phases of the class activity. As an illustration of this latter point, pupil No. 12 was out of attention once in interval *A*, three times in *B*, three times in *C*, and five times in *D*. Evidently no one particular phase of class work was responsible for his inattention, although interval *D*, devoted to study, had a

<sup>11</sup> See p. 39, this article.

<sup>12</sup> See Table I.

<sup>13</sup> See p. 39, this article.

A 9:26-0		B 9:30-0		C 9:40-0		D 9:50-2		E 10:00-2	
21-1	22-2	23-0	24-1	25-0	26-1	27-2	28-1	29-1	30-0
31-1	32-2	33-0	34-1	35-0	36-1	37-2	38-1	39-1	40-0
41-0	42-0	43-1	44-1	45-0	46-0	47-2	48-0	49-2	50-2
51-0	52-1	53-0	54-0	55-0	56-1	57-2	58-2	59-2	60-3
61-0	62-2	63-2	64-3	65-3	66-3	67-3	68-3	69-3	70-3
71-3	72-3	73-3	74-3	75-3	76-3	77-3	78-3	79-3	80-3
81-3	82-3	83-3	84-3	85-3	86-3	87-3	88-3	89-3	90-3
91-3	92-3	93-3	94-3	95-3	96-3	97-3	98-3	99-3	100-3
101-3	102-3	103-3	104-3	105-3	106-3	107-3	108-3	109-3	110-3
111-3	112-3	113-3	114-3	115-3	116-3	117-3	118-3	119-3	120-3
121-3	122-3	123-3	124-3	125-3	126-3	127-3	128-3	129-3	130-3
131-3	132-3	133-3	134-3	135-3	136-3	137-3	138-3	139-3	140-3
141-3	142-3	143-3	144-3	145-3	146-3	147-3	148-3	149-3	150-3
151-3	152-3	153-3	154-3	155-3	156-3	157-3	158-3	159-3	160-3
161-3	162-3	163-3	164-3	165-3	166-3	167-3	168-3	169-3	170-3
171-3	172-3	173-3	174-3	175-3	176-3	177-3	178-3	179-3	180-3
181-3	182-3	183-3	184-3	185-3	186-3	187-3	188-3	189-3	190-3
191-3	192-3	193-3	194-3	195-3	196-3	197-3	198-3	199-3	200-3
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971-3	972-3	973-3	974-3	975-3	976-3	977-3	978-3	979-3	980-3
981-3	982-3	983-3	984-3	985-3	986-3	987-3	988-3	989-3	990-3
991-3	992-3	993-3	994-3	995-3	996-3	997-3	998-3	999-3	1000-3

FIG. 1 - A MEASUREMENT OF INDIVIDUAL-GROUP ATTENTION

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higher frequency. On the contrary, pupil No. 31 was out of attention only in periods *D* and *E*. The sixteen minute-intervals in these two periods were given over to study, during which pupil No. 31 wasted approximately 30 per cent of his time. Evidently this pupil has poor study habits and needs help in overcoming his deficiency.

#### ATTENTION PROFILE

In obtaining the score in either the group attention or the individual-group attention, it is necessary that an observer other than the instructor do the recording. In making the attention profile the instructor may do his own recording. While the first two procedures yield group scores, the latter deals only with an individual pupil.

In making the profile the observer takes a position where he can clearly see the pupil and note his actions—even his eye movements. With his recording sheet before him, ruled into minute spaces (heavy black lines or longer light lines) and intervening spaces (light lines or shorter light lines) denoting ten-second intervals, and with a watch in his hand, the observer is ready to proceed. Care must be taken that the pupil is not conscious that he is being observed. Application is recorded to the right of the horizontal line while distraction is indicated to the left of the line. The observer notes the shifting of application to distraction and vice versa by placing a dot or lightly marked *x* at the nearest ten-second interval, writing opposite the character of the phase. When the observation, which may continue for approximately twenty or twenty-five minutes, has been completed, the dots or crosses may be joined so as to make a neat profile.

A sample profile taken of a 7A boy on March 28 in a geography class is shown in Fig. 2. The profile was made by the instructor, Mrs. Harriet Poehler, and later shown by her to the boy. No reproof was administered, but a constructive and helpful attitude was taken. The boy's interest was aroused and his attention called to the fact that his lapses of distraction were incompatible with efficient learning; that he could learn faster by improving his application. At the termination of the conference the instructor informed the boy she would profile him again later. This was done on April 12. The result is shown in Fig. 3. The second profile shows a great improvement in application. The instructor reported

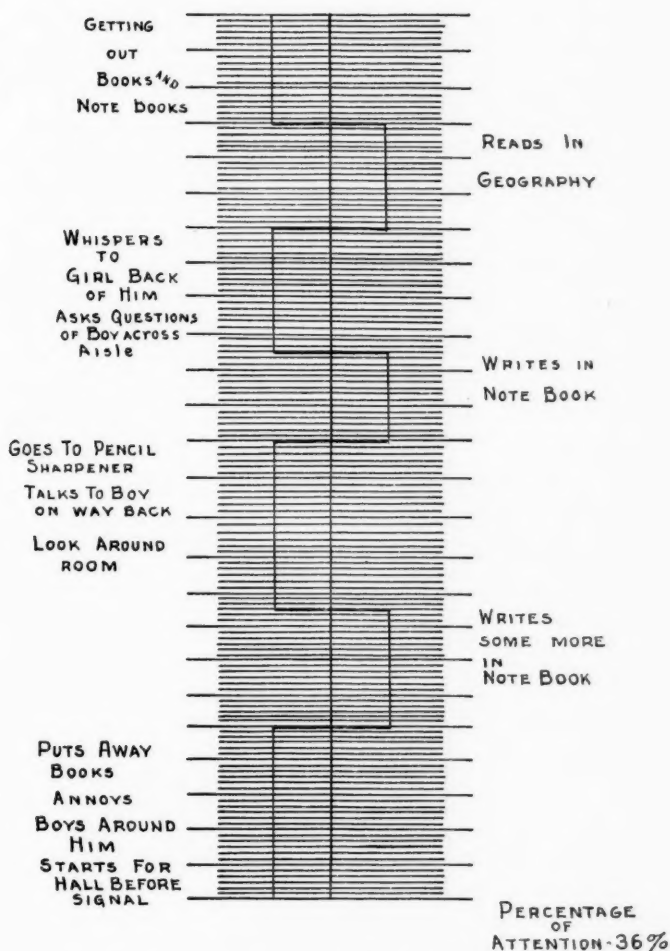


FIG.2 INITIAL PROFILE OF ATTENTION OF 7A BOY  
MARCH 28, 1928

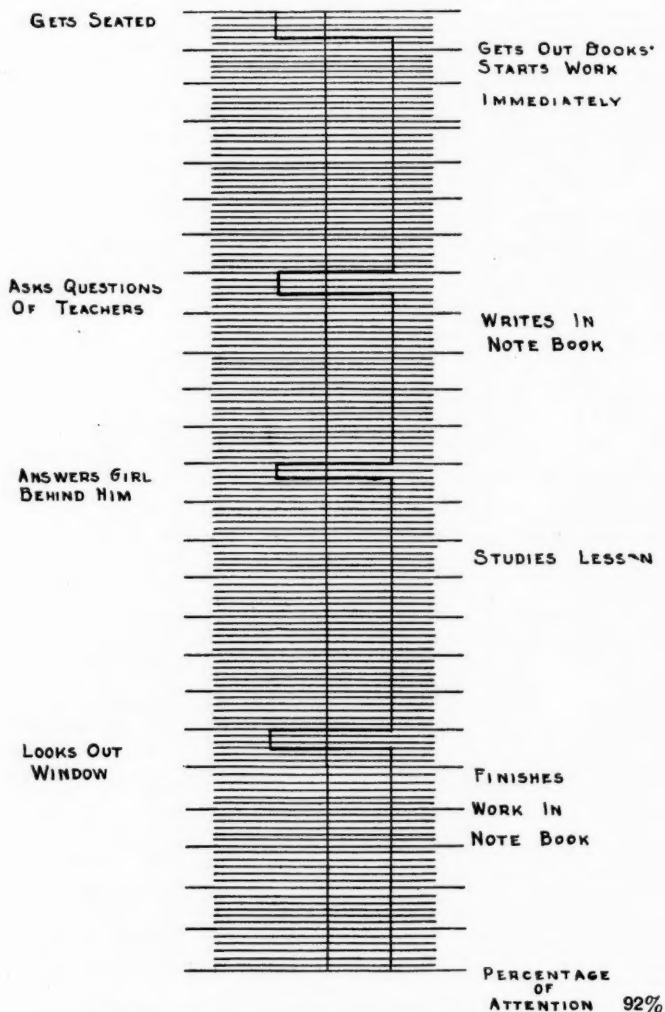


FIG. 3 SECOND PROFILE OF ATTENTION OF 7A BOY  
APRIL, 12, 1928

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a decided change of attitude on the part of the boy during the class period. The indication is that he is on the road to developing efficient work habits that will result in improved scholarship. A third profile of this boy was not found necessary.

"Now if we could be made to see ourselves as others see us, we should probably lay aside all but our most cherished follies. Being reprobated for them, however, makes little impression upon us other than to lead us to avoid exhibiting the said follies in the presence of the person whom they seem to irritate. It is of little consequence to inform George that he does not concentrate; he does not know what is meant. Bidding him 'to study' does no good. Studying is something he has yet to learn. On the other hand, if the teacher, unobserved, makes a picture of George at work for, let us say, fifteen minutes, and then privately exhibits to him his likeness with a clear explanation showing why this sort of thing is intimately related to his difficulties with his school work, something may come of it."<sup>14</sup>

#### THE VALUE TO SUPERVISOR AND TEACHER

The object of supervision is the improvement of teaching. Various devices have been perfected to aid the supervisor in his work. Standard tests and measurements may be employed that will reveal certain conditions. At this point effective supervision begins. To assist the teacher in improving deficiencies uncovered calls for genuine professional service. To do less is to fail as a supervisor; in fact, it can be definitely stated that there is no evidence of supervision. The supervisor who uses the scores obtained in the procedures outlined in this chapter as a rating device is as grossly negligent of his duty as he would be were he to use a standard test in arithmetic for the same purpose.

The procedures here outlined admit of several uses that should prove of value to supervisor and teacher, a few of which will be briefly mentioned. Here and there a supervisor may find a teacher whose control technique is faulty, occasioning a loss of pupil attention. It may be that time is wasted in getting the class down to the work at hand. There may be a loss of time through the taking of the roll, in passing papers, or in distributing the materials. An approach to the problem might be that of securing the attention score as concrete evidence to present to the teacher

<sup>14</sup> Morrison, *op. cit.*, p. 141.

in a conference. If a supervisor wished to ascertain the arithmetic or reading needs of a class, he would proceed to give standard tests in these subjects to more clearly define the situation. Such tests would present a picture of the deficiencies to be remedied. In like manner attention scores may be used to indicate the faults of a poor control technique. With the evidence at hand, procedures may be outlined calculated to overcome the weaknesses. The alert teacher will welcome this type of approach to his problem. Later another attention score may be secured. This should result in a higher score and the teacher is presented with evidence which should prove more satisfactory than merely the opinion of the supervisor.

The individual-group attention procedure may assist in isolating the more pertinent attention problems in the class. Remedial treatment, such as the profile, may then be employed with a view to assisting the individual pupil to overcome his time-wasting tendencies. Again concrete evidence is secured. Not all pupils, of course, will respond, but further investigation may reveal physical or mental deficiencies, or improper placement. The value to supervisor and teacher, however, lies in the fact that a definite approach to the problem is made.

Occasionally teachers are found who may be strong in drill work, for example, but weak in another phase or phases of class work. The individual-group attention procedure will assist in revealing which phase needs strengthening. Attention was called in the interpretation of Fig. 1 to this possibility. The value, it may be repeated, lies in the picture presented. Concrete evidence is always superior to unsupported generalizations.

Poor control technique as revealed by attention scores may be the result of faulty methods. The writer's attention was called to a particularly low attention score secured in an English class in which the instructor had sentences placed on the blackboard that were to be corrected by the pupils. The procedure followed was to send a pupil to the board to make the needed corrections while the remainder of the class observed. Long pauses followed while the pupil at the board struggled with his task. The instructor centered her attention upon the struggling pupil with the result that the procedure proved wearisome to the class and inattention became general. The low score secured proved the ineffectiveness of the procedure.

Attention scores may also be utilized in evaluating different methods of teaching from the standpoint of attention secured. In this connection it should be recalled that attention is a condition precedent to learning. That method, other things being equal, that results in high attention is superior to the one that secures indifferent attention.

Other values will, no doubt, suggest themselves to those employing the procedures outlined. The ultimate test of their value is the degree to which teaching is improved.

## CHAPTER IV

### STUDENT ESTIMATE OF INSTRUCTION

GEORGE H. BETTS

Probably no teacher or supervisor would question the value of knowing just how students look upon their courses and instructors if an accurate picture of their minds could be obtained. When one seeks to get such a picture, two serious obstacles are met: (1) the difficulty of self-analysis on the part of the student; (2) the possible lack of frankness in reporting the true estimate of an instructor or a course. Because of these two indeterminable sources of error, many have doubted the value of any attempts at studying student attitude or estimate as based on a subjective report.

And even assuming that a true composite picture could be obtained of the class's estimate of a given course, how shall this estimate be interpreted? Shall the worth of a course or the value of an instructor be judged by what the students think of either or both? Probably not. Yet every student of psychology knows that attitude is one of the largest factors in school achievement. Every teacher knows that if a subject is the victim of an unfavorable tradition in a school, there is a great handicap to overcome before that subject can be made a success. Furthermore, it is indisputable that students of secondary age and up often do have a shrewd sense of value as applied to instruction. They are not slow in locating the peculiarities and foibles of teachers, and their judgment of the worth of materials is not wholly negligible.

Granting that it seems worth while, then, to seek the student's estimate of the instruction he receives, the technique employed evidently should be such as to minimize as much as possible the two obstacles mentioned above. To that end two principles suggest themselves: *first*, ask the student only for such an estimate as will require a minimum of self-analysis; *second*, render it as easy and natural for him as possible to make an honest report of his true estimate.

The first of these two principles is dependent on the type of questions asked concerning the instruction received. The second is influenced by several factors, prominent among which are: concern whether adverse criticism may affect his own grades or the teacher's requirements; the student's general spirit and attitude toward the school; the tendency to "get back" at a teacher who is disliked, or to judge leniently a favorite.

In using the form of report given below with education classes at Northwestern University the students were addressed as follows: "By answering these questions sincerely, fairly, carefully, you can help your instructors improve their courses. This is the purpose of the questionnaire. Guarantee is given that the instructor will not see the papers before the grades are filed for the semester, so that there can be no possible chance of influencing the grading. Do not sign your name." Arrangements were then made for an assistant to collect the papers when completed and take them at once to a file, where they were kept until the grades had been reported.

#### FORM FOR STUDENT REPORT ON INSTRUCTION

Check carefully above each proper answer, or (in 13 and 14) write answers as required.

1. Compared with other high school courses, is this course ..... 

very hard	hard	average	easy	very easy
-----------	------	---------	------	-----------
2. To what extent has this course forced you to think? ..... 

very much	a good deal	average	somewhat	very little
-----------	-------------	---------	----------	-------------
3. To what extent has this course captured your interest? ..... 

very much	a good deal	average	somewhat	very little
-----------	-------------	---------	----------	-------------
4. To what extent do you think this course is practical and useful? . 

highly so	satisfactorily so	average	not markedly so	but little so
-----------	-------------------	---------	-----------------	---------------
5. Compared with other courses, what amount of time do you put on study for this course? . 

more than any other	more than average	average	less than average	less than any other
---------------------	-------------------	---------	-------------------	---------------------
6. Taking everything into account, how do you like this course as

- compared with other high school courses? ..
- |   | best of all           | above average           | average               | below average            | least of all                  |
|---|-----------------------|-------------------------|-----------------------|--------------------------|-------------------------------|
| 7. Judged by this course, how does the thought of pursuing other courses in this field appeal to you? ..... | as highly desirable   | as moderately desirable | leaves me indifferent | as not desirable         | as repellent                  |
| 8. How would you rank your own mastery of this course? .....  | very thorough         | thorough                | average               | rather poor              | very poor                     |
| 9. How would you describe the attitude and responsiveness of the class as a whole toward this course? ..... | very responsive       | fairly responsive       | average               | rather unresponsive      | little or no sincere response |
| 10. Considering all the high school teachers you have known, how would you rank your instructor? .....      | among the best        | very good               | average               | rather poor              | among the poorest             |
| 11. To what extent does your instructor impress you with mastery of his field? .....                        | very markedly         | markedly                | average               | little                   | very little                   |
| 12. Considering such faults as the course has, where would you locate them? (Check as many as necessary.)   | in the subject matter | instructor's method     | instructor's mastery  | instructor's personality | in the class itself           |
| 13. Make a list of several of your instructor's strongest points; several of his weakest points.            |                       |                         |                       |                          |                               |
- Weakest* *Strongest*
- |          |          |
|----------|----------|
| (1)..... | (1)..... |
| (2)..... | (2)..... |
| (3)..... | (3)..... |
| (4)..... | (4)..... |
| (5)..... | (5)..... |
14. What further suggestions can you give which might improve the course?

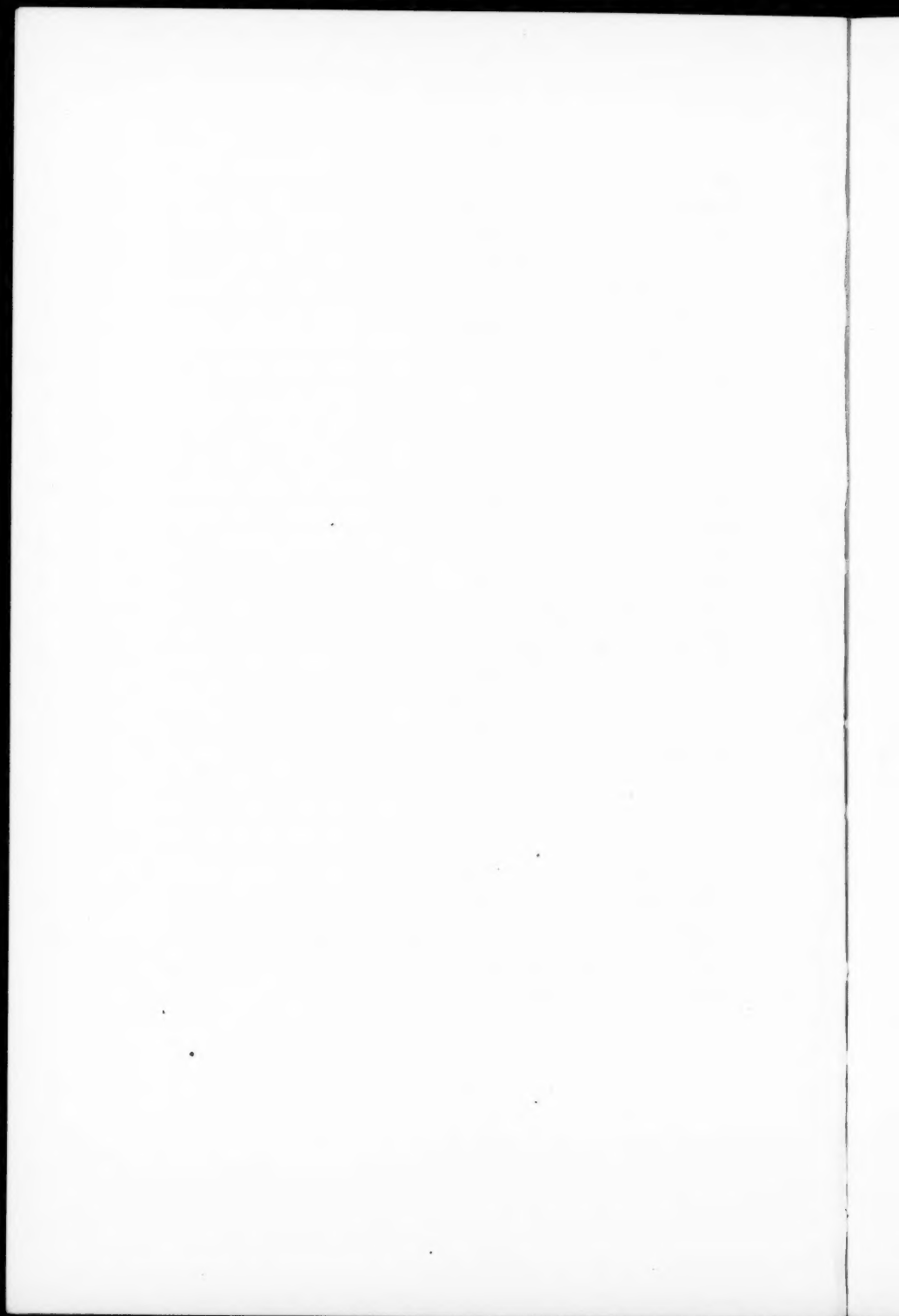
Besides the sources of unreliability in the use of this procedure which were mentioned above, the writer believes that there is

likely also to exist a constant error arising from the system of marking to which students are accustomed. They are used to seeing even a failure examination marked above 50%, which is midway or "average" between 0 and 100. To them even a passably good performance might therefore naturally be ranked as "above average." That is, they tend to mix the percentage system and the ranking system.

That this tendency is actually at work when such a form as that given above is used seems evident from returns received from college students. Though there is supposed to be chronically or traditionally much grumbling among undergraduate students over the uninteresting nature of education courses, these students (about 1000) ranked their education courses well above the average of university courses in general in interest and mental stimulus. They also ranked their instructors as well above the average among university instructors. Conceivably they might be right on both of these judgments, of course, but when a similar form was used in another section of the university exactly the same tendency appeared. It seems likely that if the study were carried to all departments of the university, it would be found that most instructors and courses are ranked above the average of university instructors and courses—a manifest absurdity.

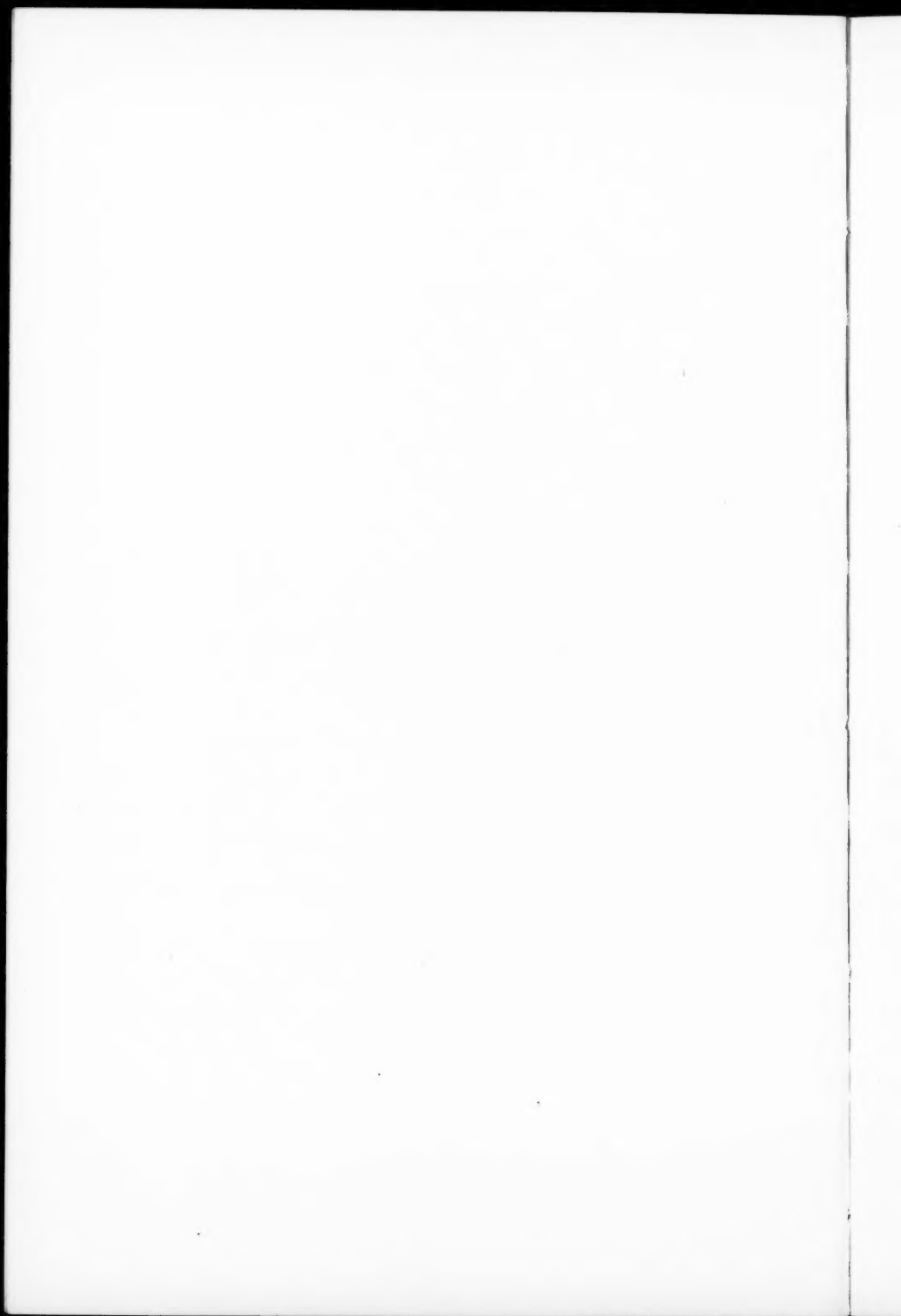
While the procedure based on the questionnaire given above has many weaknesses, it is not to be ruled wholly out of court. For it does reflect student attitude and estimate, and in so far reveals the minds with which teachers and supervisors have to deal. Teachers may not be too rigidly judged or the value of courses determined on the basis of student estimate, but neither is such estimate to be ignored.

With some intimate knowledge of the facts involved, I venture to assert that a dozen university teachers of courses in education whom I know have appreciably strengthened their instruction in view of the estimates of their courses supplied by one thousand students in their classes.





**SECTION THREE**  
**TECHNIQUES BASED ON ASPECTS OF**  
**TEACHER ACTIVITY**



## CHAPTER V

### THE RECORDING OF GENERAL FACTS REGARDING TEACHING PRACTICE

O. G. BRIM

In a sense there is little that is unique in this particular procedure for making a survey of classroom practice. It differs from several other analyses only in the complexity of the problem studied and in the extent of territory from which data were drawn.

This particular plan was developed in order to supply data on a state-wide survey of the entire rural elementary curriculum. It was not thought sufficient to base a judgment as to the quality of the curriculum solely upon the facts revealed by an examination of the printed curriculum materials. After all, the quality of a state's educational program is measured by the curriculum experienced by the children in the classroom. The teacher may or may not modify this printed curriculum. She may modify it much or little. The amount and nature of such modification are important. It was not deemed sufficient even to secure statements from teachers as to the extent to which they modify and enrich the printed curriculum. While the curriculum was studied in the two ways just mentioned, we felt that only by going into the classroom and actually observing what teacher and children do, could we satisfactorily judge its quality.

Furthermore, something was needed for this report other than general statements about observed practice, even though these conclusions might have been based upon specific and reliable evidence. If the results of one's observations are to be discussed with a teacher, at which time the supervisor would be free to give in detail the evidence for his judgment, a scheme for recording the detailed findings would not be so necessary. This would be particularly true if one were studying a fairly limited question or a single phase of classroom activity, one upon which the data are sufficiently limited so that the supervisor can bear them in mind

and present them to the teacher in verbal form during later discussion. If one is concerned, however, with a wider use of his data than merely as a basis for a conference with a teacher, i.e., if he wishes to compare his finding here with those in other classrooms, in other cities, or with later findings, or if one desires to present them to the general public, some technique is necessary for securing this data in specific and presentable form. Since in this case the problem was very complex, the data were to be gathered over an extensive area, several people were to participate in their collection, and the conclusions were to be presented in print to those who were not familiar with the situation, the need for a plan for gathering data as nearly objective as could be secured and for presenting these in concise numerical form was keenly felt.

The first step in the answer to our question was to determine what are the characteristics of a good curriculum as it is expressed in classroom activity. In connection with this study no effort was made to determine these criteria scientifically or to secure the consensus of opinion among a large number of experts. One's answer to such a question depends so much upon his point of view and his conception of educational values that objective criteria are practically impossible. The desirable characteristics in this instance were determined in a conference of those who cooperated in the direction of the study.

From among these desirable characteristics we had to select those that were reasonably subject to observation and judgment during the brief recitation period in rural schools. Many things upon which data were desired could not be included.

In the second place, it was necessary to determine what facts might be taken as evidence that a certain condition or quality was or was not present. For instance, how can one tell whether or not the pupils are relating the lesson to their own lives and experiences? Questions, then, had to be formulated that would secure the reaction of the observer to these significant items. Moreover, they must be so stated as to permit checking. There were so many items to be observed that extensive writing was impossible.

In addition to the arrangement for checking listed items, a blank space was provided for the teachers to make personal comments upon the lesson as a whole or upon any part thereof. This was freely done by the observers, and these comments were extremely valuable. They gave a quality to the picture of the

recitation that could not be gotten from the formal data. As will be noted, each recitation was treated as a unit.

It was extremely difficult to provide for all the significant features of a good curriculum. It was even more difficult, almost impossible, to provide in the plan for all the significant variations that occur and should occur in any phase of school work. There should be many types of recitations. One teacher may contribute much from her own experience to enrich the lesson; another may contribute little. One may contribute very significant and pertinent material; another may contribute more but of lesser value. One may do it in a timely and effective way; another may do it crudely, and so on. Classifying the many aspects of classroom activity is not a simple "yes" or "no" process. Significant qualities and differences are ignored and the whole may be misrepresented if we force the facts into a scheme of recording that does not fit them. Care was taken to provide, so far as possible under the conditions, for these significant variations.

To serve our purpose the following form was used:

A. Course of Study as Indicated by the Recitation.

1. What was the nature and purpose of the recitation? (Check one.)  
 Drill. Meaningful— Motivated— Mechanical—  
 Formally reciting textbook material—  
 Seeking to grasp the meaning of textbook material—  
 Discussing some vital question or problem—  
 Enjoyment—  
 Construction work or report upon work constructed—  
 Specify other type—
2. From what source was the lesson taken? (Check one.)  
 Entirely within the text—  
 Reference books or other printed sources—  
 Current events— Local questions— Children's experiences—
3. To what extent did the pupils contribute to the lesson from their personal experiences?  
 Not at all— Occasionally— Frequently—
4. How frequently did the pupils disagree with the text, teacher, or other pupils during the recitation?  
 Not at all— Occasionally— Frequently—
5. To what extent did the teacher use the pupils' experiences in making work meaningful and interesting?  
 Not at all— Occasionally— Frequently—

6. To what extent did the teacher enrich the lesson from his own experience?

Not at all— Occasionally— Frequently—

7. To what extent did the teacher suggest questions, growing out of the lesson, for the children to consider, investigate or apply in their out-of-school life?

Not at all— Occasionally— Frequently—

B. Course of Study as Indicated by the Assignment and Seat Work.

1. What was the nature of the assignment?

Take the next lesson or next few pages—

Some question or questions to be considered—

To construct or create something—

Specify other type—

2. How was the next lesson determined upon?

Arbitrarily assigned by the teacher—

Developed by the teacher out of the preceding lesson or class experience—

Proposed by pupils—

3. What was the source of the next lesson?

Textbook— Reference books—

Local resources other than books—

4. To what extent were pupils given special work?

All— A few— Not at all—

5. What was the nature of the work suggested to pupils while at their seats?

6. What percentage of the pupils at their seats seemed idle?

7. What percentage of the pupils initiated seat work when they had leisure time?

The next problem was that of selecting and training observers. The reliability of such data, the collection of which necessitated the use of several observers, depended upon the observers' interpretation of the items listed and their standards for judging the work seen. To reduce the variation, people were selected who were not only professionally trained but were familiar with the rural school situation and experienced in analyzing and evaluating its activities. These observers met as a group and a common meaning for the items to be observed was determined upon. Uniformity in application was provided somewhat by having the groups judge the same lesson and compare reports. This was repeated until reasonable agreement was reached.

As was noted previously, there is nothing particularly unique in this plan for gathering data upon classroom practice. Horn used a similar diagnostic-checking technique in his study of the distribution of pupil participation. Since he had a more limited problem, he made a more extended study of the variation in quality as well as quantity of participation. Moore, in her study of the provision for free oral expression, used a similar method of observation. In her study the problem was confined to a particular aspect of school work and the data to be checked were so clearly observable that very reliable conclusions could be reached.

In the present study, the complexity of the situation to be analyzed, the number of items studied, and the necessary vagueness of the items have made it impossible to draw anything more than general conclusions. While it is much better to study a limited topic, yet the extent to which it is possible to use a similar procedure for gathering data on a very inclusive problem of classroom practice is limited only by one's ability to define the characteristics of the activity to be observed, one's ability to select events in the classroom that will be indicative of the presence or absence of these traits, one's ingenuity in formulating questions that will secure attention to these events and a fair judgment upon them, and the skill of the observer in analyzing and judging the situation observed.

The extent to which it is safe or wise to use it depends upon one's ability to take the steps mentioned above and one's attitude toward the data gathered. The more complex the process we seek to study, the more unreliable our data. The wider the territory over which we gather data, the less true is our picture of conditions for any one place.

The dangers, difficulties, and shortcomings have already been indicated. One must first determine the standards of excellence. One must further decide what activities will secure these desired results. One must depend upon observers to interpret the standards, analyze the practice, and evaluate it in the light of the criteria. In the present study classifications had to be rather general, dividing lines were vague, many aspects had to be borne in mind at once, significant features of practice were hard to identify.

For example, it was impossible for the observer to judge with absolute fairness or to record the more significant features. Any

one lesson or assignment is a part of a series of events. A teacher may be giving a rare problem or appreciation lesson when a drill lesson would be better. The teacher may allow pupils to determine the next lesson when more guidance on her part would be wise. She may contribute too much to the lesson. The pupils may be seeing the local bearing of the lesson at the expense of its larger significance. Such a body of data presents a general picture, stimulating and helpful to the supervisor, but it is at best a crude picture. The more subtle and significant the elements, the more imperfectly are they presented. Moreover, the data, even so far as they are accurate, are true only for the territory as a whole.

The results of the study have no measured evidence of reliability. The data that came in from the several field workers varied but little in percentage of distribution over the various items under any one heading. The same general scheme was used in both the New York and the Texas surveys. Certain minor changes made it difficult to compare data very closely. A comparison, however, shows a great similarity in the practices of the two states.



## CHAPTER VI

### REMEDIAL SUPERVISION BASED ON A DIAGNOSTIC SURVEY OF INSTRUCTION

FREDERICK S. BREED

#### INTRODUCTION

The first objective of a science of supervision is improvement of instruction. On this the judgments of experts show little variance. Moreover, since the purpose of instruction is the modification of pupil behavior, that is, learning, improvement of instruction must be measured in terms of the greater economy with which desired modifications are brought about. Why is a supervisor? The answer is, economy of learning through the improvement of instruction.

The close relation that exists between supervision and instruction is implied in the definition of supervision and therefore needs neither explanation nor apology, even if one of our most suggestive writers<sup>1</sup> on this subject does apologize for devoting 160 pages, the heart of one of his books, to methods of instruction. The logic of the author seems to be embarrassed by the backward state of cultivation in the professional group to which he addresses himself. "It may be felt," he says, "that the treatment of teaching method given in chapters V to XI is out of place in a text in supervision. Strictly speaking, this criticism is justifiable." Strictly speaking, how can one avoid such a treatment if one is ever going to get beyond the externals and professional trappings of supervision and into the vital internals? Instructional methodology will surely constitute the foundational training of supervisors for a long time to come.

Indeed, we should go a step further and charge many treatises on supervision with stopping short of their ultimate goal, a criticism in which most authors would probably concur. These

<sup>1</sup> Burton, W. H., *Supervision and the Improvement of Teaching*, p. viii. D. Appleton & Co., 1924.

treatises have too often the inadequacy of the earlier books on teaching methods: they furnish guidance in general principles only. One, of course, needs to know about the problem-solving method and the conversational method and the project method, the principle of apperception and the principle of interest, but these, after all, important as they are, give form without filling, provide the spirit without the letter of learning. One has only to study the reactions of teachers in service to these pedagogic generalities in contrast to their reactions to special methods in order to discern the modern need. What these teachers desire most to know is not the whole method of memorizing, but the method of memorizing whole lists of number combinations in arithmetic; not the general value of attention in drill, but the value of getting concentrated attention on the difficult parts of words in spelling. Already the old chapters on general methods of instruction, those chapters that used to constitute our chief stock in trade, the backbone, as it were, of teacher-training curricula, are paling in importance before the brilliant developments in the fields of the special subjects. The scientific movement in education is responsible. It has carried us out of the backyards of other sciences into the front yard of education. We have ceased attempting to solve our problems by the uncertain application of borrowed principles and are inductively deriving principles of our own. The Baconian method, after three hundred years, is finding at last direct application in education and is yielding astonishing results. Today the scientific literature on the problems of teaching reading, arithmetic, and spelling cannot be catalogued short of many hundreds of references. To these specific helps the modern progressive teacher is rightly looking for light; in this direction also must the supervisor of instruction turn his face for his next important advance.

#### A DIAGNOSTIC SURVEY OF INSTRUCTION

The time has arrived for a new type of school survey—a type that will be more directly and specifically helpful to classroom teachers. Most surveys of instruction begin with standard tests and end with columns of scores that show achievement in relation to norms. Schools are shown to be high or low in relation to accepted standards, but why they are high or why low is not usually explicitly revealed. In what practices are the classroom

teachers deficient? In what are they worthy of commendation? These questions are seldom answered. The reason for this is easily explained by observing the technique of the ordinary survey. The only contacts with classroom activities made by the staff are testing contacts. Objective data that portray the strong and the weak points in the activities of either teachers or pupils are not secured.

A better type of survey, better because more adequate and definitely helpful, would be a survey of materials and methods of instruction. It would be preceded by the use of the best standardized tests, and would begin where the ordinary survey ends. Its purpose would be to lay a definite foundation for a corrective supervisory follow-up. In other words, it would be definitely diagnostic in character. It would identify the specific errors in classroom practice and indicate the procedures that should replace them.

This type of survey would not be confined to schools found low in measurements. It would be just as appropriate for schools reaching or surpassing the test norms. It would be justified wherever a school system desires to make a concerted and scientific effort to improve.

A survey of this type begins with two fundamental problems:

1. What improvements can be suggested in the content of present courses of study?
2. What improvements can be suggested in the methods of teaching these courses?

The first question would naturally be subdivided and lead to inquiry in two directions: (1) What is being taught that should be omitted? (2) What is omitted that should be taught? The study of classroom methods would in turn embrace two major problems: (1) Are approved general methods of instruction employed? (2) Are the schools up-to-date in the application of those special methods in the various subjects which educational investigations have shown to be most effective?

For data with which to check the content and methods in present courses, the survey staff would use the reports of scientific investigations, the judgments of specialists, and the practices of schools of acknowledged standing. Of these criteria the first is by far the most important. Since hundreds of statistical and experimental studies are now available, it only remains for one acquainted with the results of these studies to familiarize

himself with the practices of a school and discover the errors of omission and commission that are being made.

In order to secure knowledge of conditions in the classrooms, the writer has used the following types and sources of information:

1. Results of standardized tests.
2. Data from questionnaires.
3. Conferences with teachers and supervisors.
4. Analyses of courses of study.
5. Critiques of adopted texts.
6. Analyses of teacher and pupil activities.

It is not our purpose to discuss each of these sources of information in turn. Most of them are quite familiar to school supervisors. The use of standard tests to determine the general level of achievement; the use of questionnaires, conferences with teachers, and analyses of courses and texts to find out about the teacher at work—these are commonly enough seen in practice or are described in available treatises. We shall therefore stop to consider only the last item mentioned above, and describe a simple method designed to get an objective record of classroom activities. It is simple, that is, in contrast to certain other methods that have been used or are being tried out, such as the stenographic and dictographic methods, and yet in the case of various school subjects it yields eminently satisfactory results. Few supervisors can afford the luxury of a stenographer or a dictograph to accompany them on their classroom visitations, but all can provide the meager equipment of pencil, paper, eyes that see, and ears that hear.

In what remains to be written, attention will be confined to a limited portion of the program outlined above. We may abstract for the present from the selection and gradation of subject matter, and devote ourselves entirely to a consideration of instructional procedures.

After careful measurements of the intelligence and achievement of pupils had been made in a school system,<sup>2</sup> the writer, in order to get an objective record of teaching procedures, observed 25 complete spelling recitations in rooms selected at random from grades 2 to 6, inclusive. The object of the observations was to

<sup>2</sup> *The Racine School Survey*, Volume II, pp. 228-239. Racine, Wisconsin: Board of Education, 1926.

secure a record of the specific activities of teachers and pupils. Two methods of securing such a record were obvious: (1) using a check list representing a rather complete catalogue of activities performed in teaching this subject; (2) recording, without the use of a check list, the significant activities performed, in the order of their performance. To be most helpful the record should supply information regarding the *nature*, *order*, and *duration* of the activities performed. For the writer's purpose, the first method did not prove as satisfactory as the second. To embrace the desired detail, a check list of more than 50 items was required, which, in spite of the classification of items under general headings, proved unwieldy. The time required to locate and check an item on the list corresponding to an activity observed was commonly greater than would be required to make a memorandum of it. Again, teachers sometimes performed activities that were not represented in the check list. Moreover, after the list was checked one had a very unsatisfactory picture of the lesson. Checking provided frequency data, but told nothing of the order of performance. In spelling, data of greater practical value were gathered by recording activities in the order in which they occurred. A separate record sheet was used for each lesson. No attempt was made to time the activities.

To get a composite picture of the teaching of spelling in this school system, the different activities found in the lesson records were later listed on separate cards, the frequency of each was noted, and the cards were classified under appropriate heads. This gives a result similar to that of the check list and permits one to see at a glance the teacher and the pupil activities that are most and least frequently performed.

The reader may be interested in a general description of the teaching of spelling in this school system, based on the card classification of activities mentioned above. Activities that are unjustifiable or questionable, as judged by the results of scientific investigations, are italicized. Discussion of the scientific criteria in accordance with which these judgments were made will be taken up later in the chapter.

#### A GENERAL DESCRIPTION OF SPELLING INSTRUCTION

**PRETEST.** The pretest method seems to be gaining in popularity, though it is not found in the majority of rooms. The common practice, when using the pretest, is to administer a column test on the words for the

approaching week. Ordinarily the teacher *merely pronounces the words* in giving the test. Occasionally the pupils pronounce after the teacher and before writing.

The pretest papers are commonly marked by the teacher, not by the pupils. This is especially true in the earlier grades. Frequently, the marking is done during the class period, in some instances *as the pupils pass around the teacher's desk*, in others *as the teacher passes among the pupils*.

The pretest is followed up in various ways. Pupils who make no errors may be excused from the week's spelling work. From day to day pupils are excused from recitation in some grades as they satisfy the teacher regarding their mastery of the words misspelled. On the day following the pretest, the teacher may develop in class instruction the words missed the greatest number of times; on the day after that, words less frequently missed. One teacher was observed *moving among the pupils after the pretest, requiring some individuals to spell for her orally, others to write a word a given number of times on the blackboard*. She taught the pupils one at a time while all the rest waited for their turn. Finally, instances were observed, even in primary grades, where the follow-up was nothing more than *watchful waiting, while the children studied, according to their own devices*, the words which they had missed.

TEACHER ACTIVITIES DURING CLASS INSTRUCTION. During class or group instruction, which is the prevailing method, the following teacher activities are most prominent; they are listed in the order of decreasing frequency: (1) pronouncing the word, (2) writing it on the board, (3) using it in a sentence, (4) focalizing attention on difficult or familiar parts, and (5) syllabifying it.

Distinct pronunciation of the word is a common practice.

The words of the lesson may be written on the board as they are developed; *they may all be written in list form on the board before the recitation starts; or they may be presented in sentences written on the board before the recitation starts*. The first is the most common practice; the last, the least common.

Words are carefully pronounced and written on the board much more generally than they are used in sentences.

*In only six recitations did the teachers make definite attempts to focalize the attention of the pupils on difficult parts of words*. In a few recitations the teacher was observed to call attention to parts of words with which the pupils were already familiar.

*Syllabification is only occasionally seen*. The writer has notes on four cases in the twenty-five recitations. In two of these the word was syllabified on the board, in the third case the pupils were asked to spell by syllables, and in the fourth case the teacher merely inquired about the number of syllables.

PUPIL ACTIVITIES DURING CLASS INSTRUCTION. The principal activities of the pupils during class instruction are: (1) observing a word as the teacher writes it or points to it on the board; (2) pronouncing and spelling orally—by individuals, rows in concert, room in concert; (3) looking at

the word in the book, pronouncing, and spelling orally; (4) giving sentence containing word; (5) writing words from board copy or spelling book by the group on practice paper, by *individuals at the blackboard*, by *individuals or groups in the air*; (6) studying during a limited free period; writing review words, giving attention to the words that are hardest, taking a last look at the words before taking the test, looking at the book and spelling orally; (7) recalling and spelling orally: *all the words developed up to a given point, all the words of the day's lesson after they have been developed, words that have been erased while pupils had heads on desk, words all letters of which have been erased except the initial letter, words represented by pupils called to the front of the room.*

**METHODS OF TESTING.** The daily spelling tests may be characterized as follows: (1) paper is in the form of neat uniform sheets or tablets; *paper is in separate sheets or tablets of almost as many kinds as the number of pupils*; (2) in some rooms the practice is uniform with regard to use of pen or pencil, in others *a mixture of pens and pencils is in evidence*; (3) in approximately half of the rooms observed monitors are used for the distribution or collection of papers, or both; (4) *in nearly every instance the words of the lesson are dictated in the form of a column test*; (5) *while some of the teachers merely pronounce the words in the test, most of them use each word in a sentence after pronouncing it*; (6) teachers mark test papers: *outside of class, during the class period, as pupils come to the desk; during class period, passing from pupil to pupil*; (7) pupils mark test papers after exchanging with a neighbor: *by the help of the teacher, who writes each word on the board; without such help*; (8) spelling errors are corrected by having pupils copy misspelled words on the back of the preceding page in the spelling tablet; *by having pupils come to the front of the room one at a time and spell such words orally.*

#### MISTAKES IN THE TEACHING OF SPELLING

From the record of teaching activities made as above described, a summary of erroneous or questionable activities was prepared. This is probably the most valuable diagnostic material for the supervisor, the most important precipitate of the analysis. In fact it seems so much more important than the rest of the material that the question might be raised as to whether the observer should not confine himself to a record of erroneous steps. No doubt a limited record of this kind would contain most of the information desired, especially if the notes were full enough to give a setting for the activities characterized as unjustifiable.

#### LIST OF ERRONEOUS ACTIVITIES

1. Devoting a regular period of fifteen minutes to spelling, and, in addition, a study period of the same length.



2. Marking pretest\* papers of individuals during school hours while the rest of the pupils in the room idly await their turn.

3. Drilling pupils individually and privately on words misspelled in the pretest, while the rest of the class idly await their turn.

4. Having the pupils spend whole periods after the pretest in study according to their own devices, while the teacher confines her activity to disciplinary rather than study supervision.

5. Teaching from a list of words or a group of sentences placed on the blackboard before the recitation starts, rather than from words vividly written in the presence of the pupils.

6. Neglecting to focalize the attention of the pupils on points of special difficulty in words.

7. Neglecting to syllabify long and difficult words.

8. Substituting other modes of practice for the most important kind, namely, practice in writing the words.

9. Employing a considerable portion of the spelling period for general memory drill instead of scientific spelling drill. A case in point is that of the teacher who assigned the words of the lesson as personal names to as many pupils, called these word-named pupils to the front of the room, and then required members of the class to recall not only the spelling of the words but, prior to that, the very words themselves.

10. Permitting the written work in spelling to be done on almost as many kinds of paper and tablets as the number of pupils in the room.

11. Permitting the use of a random mixture of pens and pencils in the same room.

12. Utilizing two periods and two classes for the teaching of spelling by the group method, in a room containing from thirty to thirty-five pupils in the same grade, when as good results can be obtained by teaching all of the pupils in the room in one class during one period.

#### CRITERIA FOR EVALUATING ACTIVITIES

In evaluating teaching activities in spelling, two sources of information have proved helpful: the results of investigations and the judgments of specialists. Naturally scientific investigations constitute the more reliable source, and these fortunately have been numerous enough to determine most of the steps which the teacher should employ. A capable graduate student who was assigned the task of listing the teaching activities for which there is scientific authority, submitted a report to the writer containing thirty-two items, and it is not at all certain that his list is complete. Such a list provides the best solutions available for the specific problems encountered in the teaching of spelling, but it presents no clear picture of a unit in the teaching of spelling.

\* By pretest is meant a test given on the words of an assignment before the words are studied.



For this one should have a knowledge of the relative importance and proper order of activities. In other words, both analysis and organization of the activities are necessary.

Before attempting to select and organize the most vital teaching procedures, the writer made a tabulation of the activities recommended by six authors of spelling texts, all of whom have high rank as scientific workers. In this tabulation all the different activities advised by these authors were expressed in terms of *pupil* activity and the frequency of each was recorded. The number of different teaching activities recommended by these authorities was thirty-four. This number is several times the average number recommended by them, and indicates that they are far from agreement in regard to the particular procedures to be employed. Further analysis of the tabulation indicates, however, that there is greater agreement than is indicated on the surface. The thirty-four activities were found to be classifiable into eight major kinds or types, the majority of which had each been proposed by three or more of the authors. These major activities, expressed, as earlier suggested, in terms of the mental processes required of the pupils, were as follows: (1) seeing the word, (2) hearing its pronunciation, (3) pronouncing it, (4) using it in a sentence, (5) visualizing it, (6) spelling it, (7) focalizing attention on difficult parts, and (8) writing it. The order of statement is not determined by the tabulation.

Although there is considerable disagreement among these specialists in regard to the nature of the particular activities, their number and their order, the agreement on essentials is quite marked. The tabulation reveals what might be termed a consensus of opinion among competent workers in regard to the fundamental activities.

Each of these eight steps has ample justification in the extensive literature on methods of teaching spelling. If space permitted, it would be possible to examine them one at a time and cite particular investigations that support them.<sup>4</sup> On account of limitations of space, therefore, we shall pass directly to the problem of preparing a plan of study for the pupil. Needless to say, the supervisor should have a definite plan of study in mind if he desires to be constructive as well as critical.

<sup>4</sup> This evidence will appear shortly in a book by the writer entitled, *How To Teach Spelling*.

A DEFINITE PLAN OF INSTRUCTION <sup>5</sup>

In the preparation of the following list of teaching directions, consideration was given both to the practice of specialists and to the results of research. No direction is included that lacks scientific support; none of the eight activities previously mentioned has been omitted. A scientific critic of this plan might argue for a decrease in the number of steps, an increase in their number, a substitution of other steps for some included, a change of order, or several of these in combination—all of which means simply that at this point we have reached the limits of exact determination, so far as the present results of spelling research are concerned.

The activities of the teacher and of the pupils in attacking a new spelling word may be organized as follows:

## ACTIVITIES OF THE TEACHER

1. Pronounce the word, by syllables if long.
2. Use it in a sentence.
3. Write it on the blackboard and have the pupils pronounce it in concert.

## ACTIVITIES OF THE PUPIL

1. Look at the word and say it softly.  
Your teacher will often ask one of you to say it aloud.
2. Look at the word and say it in a sentence.  
Your teacher will often ask one of you to say your sentence aloud.
3. Look at the word and say the letters softly.  
Your teacher may have some of you do this aloud.
4. Close your eyes and say the letters softly.  
Your teacher will often ask one of you to do this aloud.
5. Write the word and say the letters softly as you write.  
Look at your book if you need to.  
Your teacher will pass among you and watch you as you do this.
6. Draw a line under any part of the word that is hard for you.  
Your teacher may ask you to tell what part is hard.
7. Cover the word on your paper with your hand.  
Now write the word without looking at your book.
8. Look at your book to see if you got it right.  
Keep trying till you do.

## THE NEED FOR SUPERVISION

It might be supposed that teachers would closely follow a method like that just described, if it were presented to them in

<sup>5</sup> The plan herein described has been incorporated in a course of study in spelling. See *The Breed-French Speller*, published by Lyons & Carnahan, 1927.

the adopted text. On the contrary, few facts are more impressive than the waywardness of practice—the omissions, transgressions, and substitutions that one discovers—in such an instance. The need for effective supervision becomes nowhere more apparent than in a check-up in a situation of this kind. During a survey<sup>6</sup> of instruction in the Wilmette, Illinois, schools, where the spelling text supplied detailed teaching directions similar to those presented above, extreme diversity of method was found in the classrooms. Some teachers ignored the directions, some used those that appealed to them and ignored the rest, some followed them conscientiously. In justice to these teachers it should be stated that teachers elsewhere are in general going through this same experience. The problem of training pupils in the accepted study procedures gives rise to difficulties. Where the pretest method is employed, the problem of study supervision seems especially acute.

An investigation of study habits under the pretest method in Wilmette showed that the pupils were very inadequately trained. The writer carefully examined the study habits of pupils in the fourth, fifth, and sixth grades. High, medium, and low spelling abilities were represented in the group. The pupils were studied individually in a special room. Each was equipped with textbook, pencil, and paper and was requested to learn the spelling of four difficult words. Each was observed carefully while studying and questioned in detail after studying to find out just what he did to learn the words. The prevailing method among these children consisted of two steps: (1) spelling the word while looking at the book, (2) spelling the word while looking away from the book. Two-thirds of the pupils used these two steps and no more. The impressive characteristic of their study technique was its simplicity and meagerness. One cannot refrain from wondering to what extent a technique as simple as this could have been acquired without the intervention of a school teacher.

Among the ten outstanding weaknesses of the spelling instruction in this school system, ineffective training of pupils in methods of study was regarded as the greatest. This conclusion rests on the conviction that the central factor in spelling instruction is the proper direction of the pupils' study activities. In the past

<sup>6</sup> Breed, F. S., and others, *A Study of Materials and Methods of Instruction in the Wilmette Public Schools*. Wilmette, Illinois: Board of Education, 1927.

we have paid much attention to definitions of teaching in terms of teacher activity. We are now more and more coming to define the educative process in terms of the mental activities of the pupils. It is the business of the teacher to direct these activities so that an effective procedure will become habitual. The supervisor, through guidance of the teacher, has precisely the same objective.

In the foregoing pages attention has been concentrated on those specific problems that seem most crucial in the teaching of spelling. With most other problems the supervisor should have less difficulty. Among these other problems would be the selection of a word list, determination of class size and time allotment, organization of a weekly test-study unit, pre- and post-testing, conduct of dictation and dictionary exercises, and the use of standard scales and tests. In connection with these problems the supervisory procedure would be the same as in the guidance of learning activities: check the facts of classroom practice with the results of investigations and the judgments of specialists.

Finally, a word might be said about the use of a similar supervisory procedure in other subjects. This has been attempted by the writer in arithmetic and handwriting in one of the school systems referred to above.<sup>7</sup> No difficulty was experienced in discovering scores of instances where the practice of teachers was at variance with educational investigations and in suggesting more scientific procedures, thus providing the basis for a definite remedial program for the supervisory staff of the system.

<sup>7</sup> Breed, *op. cit.*, sec. 5, 1-11; sec. 6, 1-9.

## CHAPTER VII

### TEACHERS' DIFFICULTIES AS A BASIS FOR SUPERVISION

DOUGLAS WAPLES

The following discussion is organized to cover the six topics designated by the committee. The first topic, namely, "the need for the procedure and its value to the supervisor," may be covered very briefly. That a procedure to determine teachers' difficulties is valuable to the supervisor should be obvious. Assuming that the teacher knows what results are to be accomplished, the supervisor's business is to help teachers to avoid as many difficulties as possible and to help them overcome the difficulties that cannot be avoided. Until the difficulties have been determined that are likely to confront the teacher, the supervisor cannot render efficient help in avoiding them by systematic planning. It is equally clear that when the teacher is involved in a difficulty, the supervisor's help can be intelligent only to the extent that the nature of the difficulty is clearly defined.

#### SUPERVISORY PROBLEMS RESPONSIVE TO DIFFICULTY ANALYSIS

The procedures to be described have proved highly efficient as applied to any supervisory problem that involves the selection of methods appropriate to a given classroom situation. For the sake of logical clarity, such problems may be classified under one or more of six types. The types represent a sequence of problems that any adequate supervisory program should meet. A supervisory program that fails to cover any one of these problems is to that extent inadequate. The six typical problems of supervision involve somewhat different techniques, each of which will be briefly described and then illustrated.

The six supervisory problems are as follows:

1. To anticipate the teaching difficulties of beginning teachers or of experienced teachers undertaking a new teaching assignment.

2. To help individual teachers recognize the difficulties of which they are only vaguely conscious and to make such difficulties explicit in terms of typical classroom situations.

3. To collect the difficulties which the teachers of a given school, department, or grade are able to define and to organize the difficulties so as to provide a program for systematic supervision of the group of teachers concerned.

4. To evaluate the difficulties with respect to such criteria as frequency, importance, and seriousness—for the group of teachers concerned.

5. To analyze a given type difficulty into the specific difficulties it involves, in order that the specific difficulties may be more conveniently solved.

6. To collect solutions for the difficulties from available sources and to organize the solutions for the teachers' convenient use.

#### DESCRIPTION AND ILLUSTRATION OF TECHNIQUES APPROPRIATE TO EACH TYPE OF SUPERVISORY PROBLEM

Problem 1. *To anticipate teaching difficulties.* An advantage in using the teacher's difficulty as a basis for supervision lies in the fact that the person who confronts a difficulty is eager to overcome it. Hence a teaching difficulty, when defined, is not merely a situation in which the teacher needs help but is also a situation that challenges the teacher's own efforts. In other words, a teaching difficulty is a situation which is defined in terms of the teacher who is not fully prepared to meet it. Hence a difficulty, as such, is a state of mind quite as much as it is an objective situation to be met. This dual aspect of the teaching difficulty in large measure explains its peculiar significance for the supervisor.

Yet the subjective character of a teaching difficulty is somewhat troublesome when one undertakes to anticipate the difficulties of beginning teachers. One cannot safely predict the relative difficulty of teaching situations for a beginning teacher beyond a certain degree of probability. In defining situations that are likely to prove difficult for teachers of a given type, it is therefore desirable to think in terms of the objective situations themselves. On the basis of considerable experiment with different ways of defining teaching situations, the writer is inclined to state with some confidence that teaching situations are most adequately described in terms of teaching *activities*. Hence what

follows undertakes to show how the teaching difficulties of beginning teachers may be anticipated in terms of teaching activities.

The steps that have proved satisfactory in anticipating the difficulties of beginning teachers of a given type are as follows:

1. Prepare and classify a complete list of classroom teaching activities as performed by teachers of a given department or grade level.

2. Submit the activities thus classified to not less than twenty-five representatives of each professional group that is qualified to render an expert judgment regarding the relative difficulty which teachers of the given grade level have in learning to perform each of the activities listed. The groups so chosen will naturally include teachers in service, supervisors, principals, professors of education, and others whose experience and training would enable them to evaluate the activities for the given type of teacher.

3. Summarize the returns from each group separately and rank the activities by deciles with reference to the ratings obtained from each group separately.

4. Estimate the probable difficulty that the given group of beginning teachers will have in learning to perform each of the activities by combining the decile ratings of the appropriate groups.

Substantially this procedure was followed in a recent study<sup>1</sup> which undertook to prepare and evaluate a complete list of teachers' activities as performed from the kindergarten through the twelve grades. The reader is referred to the report of the study for a full description of the technique. Table I is one of many pages of one summary table contained in the report. It shows the decile ratings of a few teaching activities with respect to the difficulty with which teachers learn to perform them. The figure 1 means the highest decile and the figure 10 means the lowest. That is, the figure 1, following an activity and placed under the group from whom the ratings were obtained, means that this activity is among the fifty-six activities from a total of 559 activities that are considered most difficult for a given teacher to learn. The types of teachers to whom the ratings apply may be inferred from the descriptions of the groups of judges shown at the top of the table.

<sup>1</sup> Charters, W. W., and Waples, Douglas, *The Commonwealth Teacher-Training Study*, Chapter III. University of Chicago Press, 1929.

It is not to be suggested, of course, that the individual supervisor should himself undertake to prepare a complete list of activities and obtain ratings which, like these shown in the table, are statistically reliable. The fact that these necessary data cannot be assembled by the individual supervisor was responsible for an appropriation by the Commonwealth Fund of New York City whereby the data might be made available for supervisors in general. By means of the data contained in the report, it is comparatively easy for any supervisor to identify the teaching activities that are most difficult for teachers of a given type to learn. If, then, an activity which is difficult for the teacher to learn is regarded as equivalent to a teaching difficulty, we have a procedure whereby the difficulties of beginning teachers may be anticipated with a high degree of accuracy.

Problem 2. *To help teachers recognize the difficulties of which they are only vaguely conscious.* It is a common experience among instructors of teacher-training courses that the school teachers whose professional background is the most limited are those who are least able to define their teaching difficulties. For this reason it is usually a greater task for the supervisor to make the teacher recognize a deficiency that implies a difficulty than it is for the supervisor himself to discover the deficiency. Two techniques have been developed whereby teachers may be helped to recognize such difficulties. The first involves the use of a self-rating scale; the second involves the use of exercises based upon typical problem-situations. Both techniques will be described.

The self-rating scale referred to will be found to differ from other self-rating scales in that each one of a series of 69 questions represents a typical difficulty as reported by high school teachers in service. Moreover, each of the questions regarding the teacher's own classroom performance is to be answered with reference to individual pupils in a given class who are most difficult to teach. An original list of some 3500 difficulties reported by teachers in service was analyzed in various ways until the 69 type difficulties were defined.<sup>2</sup> Each type difficulty was then thrown into the form of a question that may be answered by *Yes* or *No*. In case a teacher is genuinely interested in locating

<sup>2</sup> For a detailed description of this procedure see Waples, Douglas, *Problems in Classroom Method*, Appendix J. Macmillan, 1927. The volume as a whole is concerned with techniques for the definition and solution of difficulties in classroom teaching.



**TABLE I**  
**DECILE RANKS OF ACTIVITIES AS RATED BY REPRESENTATIVE GROUPS FOR DIFFICULTY OF LEARNING**

ACTIVITIES FROM CHECK LIST		A	B	C	D	E	F	G	H	I	J	K	L
DIVISION I, SUBDIVISION A TEACHING SUBJECT MATTER		U. OF C. GRADUATES	CITY H. S. PRINCIPALS	SUP. PRACTICE TEACHING SEC. GRADES	COLLEGE INSTRUCTORS SEC. EDUCATION	CITY JUNIOR H. S. TEACHERS	INTERMEDIATE TEACHERS	KID.-PRIMARY TEACHERS	RURAL TEACHERS	CITY ELEM. SCHOOL PRINCIPALS	CITY SUPERVISORS ELEM. GRADES	SUPERVISORS TEACHING—ELEM.	COLLEGE INSTRUCTORS ELEM. EDUCATION
<b>A. Planning:</b>													
1. Planning activities to be planned:													
(a) Selecting objectives .....		1	1	2	1	1	1	5	3	1	2	3	1
(b) Planning selection and organization of subject matter .....		1	2	3	1	2	1	5	3	1	2	1	1
(c) Planning methods of developing interests		1	1	1	1	1	2	3	2	1	1	2	2
(d) Planning methods of instruction .....		1	2	5	1	2	7	5	2	1	2	2	3
(e) Planning methods of assigning work ...		2	8	7	1	4	6	1	5	2	3	2	3
(f) Planning methods of providing sufficient opportunity for pupils' activities .....		1	2	1	1	1	1	1	1	1	1	1	1
(g) Planning facilities for individual study		1	7	1	2	1	1	1	1	1	1	1	1
(h) Planning methods of evaluating pupils' needs, abilities, and achievements .....		1	2	1	1	1	1	1	1	1	1	1	1
(i) Planning methods of developing teach- ers' personal traits .....		1	2	1	1	3	1	1	1	2	1	1	1
2. Finding adequate time for planning .....		1	8	2	6	2	2	3	2	2	3	6	2
3. Finding sufficient methods of planning .....		5	3	7	1	2	2	6	1	2	4	1	1
4. Writing and recording plans .....		4	9	9	6	7	5	5	7	3	5	4	3
5. Evaluating and revising plans .....		3	5	5	6	7	4	5	2	2	3	2	2
6. Filing and preserving plans .....		10	10	10	10	10	7	10	9	8	10	8	10

deficiencies that represent difficulties not yet overcome, the scale shown in a following paragraph is a highly useful device. The use of the scale involves two steps. The teacher must first select

TABLE II  
APPLICATION OF THE CHECK LIST TO A IX-B ENGLISH CLASS

QUESTION NUMBER *	No. of Yes		No. of No		PUPILS															
	No.	Yes	No.	No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	10	1	x	x	x				0	x		x		x	x	x	x		x	
3	2	3						x		x				0	0		0			
4	8	0		x			x	x		x		x		x		x		x		x
5	3	3	x				x	0						x	0			0		
6	9	0	x		x		x	x		x		x		x			x		x	x
7	6	2	0	x			0	x	x					x	x			x		
11	13	3	x	x	x	x	x	x	0	x	x	x	x	x	x	0	x	0	x	x
16	13	0	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
17	14	1	x	0	x		x	x	x	x	x	x	x	x	x	x	x		x	x
18	8	3		x	x		0			x	0	x	x			x	0	x		x
22	5	0	x					x		x				x					x	
24	3	2			x			0				x				0				x
26	8	0	x		x			x			x	x	x	x			x			
35	8	2	x		0	x		x		x				0		x	x		x	x
40	13	3	x	x	x	x	x	x	x	x	x	x	0	0	0	x	x	x	x	x
42	7	3	x	0	x		0		0		x			x	x		x	x		0
41	8	2	x	0			0			x				x		x	x	x	x	x
43	14	1		0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
45	2	0						x						x						
46	7	0	x				x				x					x			x	x
47	10	6	x	0	x	0		0	0	x	x	x	x	x	0	x	x	x	x	0
51	6	0	x					x	x		x				x		x			
57	14	0		x	x	x	x	x	x	x	x	x	x	x	x	x	x			x
63	14	0	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	x
64	16	0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
66	9	0	x	x	x					x	x			x	x			x	x	
67	12	4	x	x	x	x	x	x	x	x	0	0	0	0	x	x		0	x	x
68	15	0	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
69	14	2	x	x	x	0		x	x	x	x	x	x	x	0	x	x	x	x	x

\* The numbers here shown refer to the questions as listed in the text (see pages 83-84).

(x MEANS "No"; 0 MEANS "CAN'T DECIDE"; BLANK SPACE MEANS "Yes.")

those pupils in a given class whose responses are less satisfactory than the responses of the pupils of median ability. The teacher must then reply "Yes," "No," or "Can't decide" to each of the 69

questions that apply to each of the pupils selected. When the questions have been answered by the teacher himself with reference to each pupil, the questions that are answered "No" for the largest number of pupils will be found to indicate the more serious deficiencies in the teaching of the particular class. Table II, here shown for illustration, contains the replies of one teacher to such of the 69 questions as were considered significant when applied to an entire class of sixteen pupils.

"The sixty-nine questions are standardized for application to any high school class. The symbols in parentheses following each question refer to the type-difficulties of Part II,<sup>3</sup> where solutions for the given difficulty are proposed."

#### QUESTIONS \*

1. Has your own command of the subject matter of this course been sufficient at all times to meet the needs of this pupil? (I.A) page 264.
2. Does this pupil obtain a clear idea of new material from your prepared explanations at whatever times the new material is introduced? (I.B) page 266.
3. Does this pupil relate the subject matter to his own life experiences closely enough to indicate that the subject matter is adapted to his needs? (I.C) page 270.
4. Does this pupil usually proceed with the work assigned without requiring repetition of any part of the assignment? (I.D) page 277.
5. Does this pupil recognize the coherence of topics which are presented at different times? (I.E) page 280.
6. Does this pupil read collateral references on his own initiative and relate them to the work of the course? (I.F) page 285.
7. Do your illustrative examples enable this pupil to understand principles more easily than when the principles are stated in abstract terms? (I.G) page 289.
8. Does this pupil respond favorably to the brief talks and readings by which you supplement material contained in the textbook? (I.H) page 292.
9. Do the specific difficulties of this pupil indicate that the material which he most needs has been sufficiently emphasized in your teaching? (I.I) page 294.
10. Does this pupil understand your incidental explanations clearly? (I.J) page 297.
11. Does this pupil form sincere appreciations of the subject matter presented? (I.K) page 300.
12. Does this pupil's response in the classroom indicate that you have planned his work to his best advantage? (II.A) page 309.

<sup>3</sup> Of the book from which the quotation is made, namely, *Problems of Classroom Method*.

\* Only 25 of the 69 questions are shown for illustration.

13. Does this pupil respond to questioning by analyzing his own difficulties? (II.B) page 313.

14. Do this pupil's oral and written statements receive sufficiently helpful criticism? (II.C) page 317.

15. Does this pupil criticize his own work and the work of other pupils freely? (II.D) page 320.

16. Does this pupil keep to the point in oral and written discussion? (II.E) page 322.

17. Does this pupil hold the class audience in making oral reports? (II.F) page 325.

18. Does this pupil learn from oral exercises the points which the exercises are intended to teach? (II.G) page 327.

19. Does this pupil learn from written exercises how to apply a given principle? (II.H) page 332.

20. Does this pupil use care in selecting the best words to express a given idea? (II.I) page 336.

21. Does this pupil recognize the interrelation of different elements of the course? (II.J) page 338.

22. Does this pupil receive the individual direction in study which enables him to overcome his own learning difficulties? (II.K) page 341.

23. Does this pupil find your explanations adequate (i.e., neither too lengthy nor too brief)? (II.L) page 346.

24. Does this pupil voluntarily organize his written work by means of outlines? (II.M) page 349.

25. Does this pupil undertake drill work with a clear idea of the standard to be met and persevere until the standard has been reached? (II.N) page 351.

While this procedure sometimes requires more honesty in making the judgments and more time in recording them than certain teachers possess, it has been found highly effective with teachers who are capable of systematic self-criticism.<sup>5</sup>

For teachers whom it is difficult to persuade to apply the self-rating scale to their own performances, the use of the problem-exercise is recommended. As will be noted from the illustration to follow,<sup>6</sup> the exercise consists in a typical situation that arises in the teaching of a particular subject. Following the description of the situation are five possible ways of meeting it. The teacher is asked to consider each of the five ways and to decide which is best and which is worst. The teacher's judgments may then be compared with the official scores in order to determine to what extent the teacher's judgment is sound. When the teacher fails to select as the best way that one of the five procedures which

<sup>5</sup> For fuller explanation see *ibid.*, pp. 43-52.

<sup>6</sup> From a volume containing sixty such exercises: Waples, Douglas, and others, *Problem Exercises for High-School Teachers*. University of Chicago Press, 1928.

the evidence shows to be the best, the supervisor may discuss the situation from a strictly impersonal standpoint. Assuming that the problem exercises assigned to the teacher are those which correspond with the situations that the supervisor has found the teacher unable to meet, a thoroughgoing discussion of the teacher's performance on the exercise is a highly useful way of helping her to recognize her difficulties.

The following problem-exercise is typical and represents a situation that inevitably presents some difficulty to all teachers of English literature:<sup>7</sup>

#### ADAPTING PRESCRIBED MATERIALS TO INDIVIDUAL NEEDS

A certain collection of poetry and prose selections is prescribed for a ninth-grade course. The teacher announces that the next week will be devoted to a careful study of *The Lady of the Lake*, which is one of the selections in the textbook. Three of the pupils state that they have already read the poem at home. In adapting the assignment to the needs of these pupils, the teacher might use one or more of the procedures listed below:

1. By excusing the three pupils from class and allowing them to go to the library during that week to read other poems by Scott.

2. By asking the three pupils to hand in a summary of the poem. If this assignment is well done, the teacher will excuse the pupils for the rest of the week.

3. By suggesting that she herself has found something new every time she has reread the poem, and that familiarity will add to their enjoyment.

4. By pointing out that it is only fair to the others to have everyone complete the same assignments, but that they can cooperate by being prepared to answer questions asked by the other pupils.

5. By saying their familiarity will allow them to make a real contribution—perhaps a dramatization of any part they like best. If good enough, it can be acted out informally. During class discussions they should make notes of points that will need careful exposition.

#### Directions:

- (a) Write the number of the procedure you consider best ———
- (b) Write the number of the procedure you consider least satisfactory ———
- (c) State, if you can, a procedure which you think is more satisfactory than any listed above.

The two devices that have been described for helping teachers to recognize their difficulties are highly useful to a general supervisor for collecting data that will give an objective picture of current teaching practice in his school. The self-rating scales, when filled out by each member of the staff, represent in terms

<sup>7</sup> Waples and others, *op. cit.*, p. 39.

of an index number the relative difficulty of the 69 type situations as judged by each teacher with respect to his own teaching of one or more classes. Similarly the scores on the problem-exercises represent somewhat objectively the degree to which each teacher agrees with competent authorities in evaluating problem situations that are found to cause difficulty to most teachers of the given subject.

**Problem 3.** *To collect the difficulties recognized by the individual teachers of a given staff.* A third technique is useful in collecting data for study in connection with the supervisory program. It is assumed that teachers are not conscious of some difficulties and that they *are* conscious of other difficulties. The technique to be described applies only to the latter.

Essentially, the method of collecting such difficulties consists in having each teacher list as many difficulties as possible and describe them in sufficient detail to make each one clear. When each teacher has submitted some difficulties, they may be combined into a master list and returned to the teachers for additions. In this way it is possible for a supervisor to secure with very little effort the difficulties that are most generally recognized by the staff as a whole. In the large majority of cases the difficulties collected in this way are most useful for preliminary study by the supervisor. Such reports make it possible for the supervisor to identify the difficulties that the staff is most concerned about and to select from these the difficulties confronting the largest number of teachers, then the difficulties confronting the next largest number of teachers, and so on.

The following quotation indicates in greater detail the steps which a supervisor may take to collect the difficulties recognized by the members of a given staff.<sup>a</sup>

The supervisor by whom the following procedure is used should omit whatever steps are not useful under the existing conditions. The procedure can often be simplified by adjusting it to the immediate needs of the teachers concerned.

a. *Step 1.* Present the plan for criticism. When the staff is organized under department heads, refer the procedure herein outlined to the department heads for discussion and criticism. When no department heads are appointed, call a staff meeting and have departments consisting of more than one teacher appoint a temporary chairman. In a staff of fewer

<sup>a</sup> Waples, Douglas, *Problems of Classroom Method*, pp. 62-66.

than fifteen teachers, form discussion groups of not more than four or five teachers each, with a chairman for each group.

b. *Step 2.* Present the program of study shown below as effectively as possible. Distribute a mimeographed outline of the plan, explain it briefly, and call for discussion. Then refer the matter for action at a later meeting.

c. *Step 3.* Adapt the following outline to the conditions of the particular school.\*

*Purpose of the study:* To locate difficulties in the classwork of different departments and courses and to find satisfactory methods of removing the difficulties.

*Organization of the study:* Duties of contributing group.

#### CLASSROOM TEACHERS

1. To collect the difficulties met in teaching one or more courses.
2. To prepare as many solutions as possible for each difficulty.
3. To report the difficulties and solutions to the group at each regular meeting (preferably bi-weekly).
4. To work with the other members of the departmental group at the general weekly meetings in the effort to find better solutions for the difficulties reported.
5. To undertake such reading and classroom experiment as may help in selecting adequate solutions for the difficulties.

#### GROUP CHAIRMEN

1. To collect and edit the suggestions received from teachers for presentation to the group. This involves (a) following up such teachers as may not have submitted suggestions on time; (b) referring back to the teacher such difficulties or solutions as may not have been submitted in sufficient detail to be entirely clear; and (c) organizing the material for the conference in such a manner that essentials will be noted.

2. To act as chairman of the (bi-weekly) group conferences. This involves (a) reading all difficulties submitted and determining by vote of the group which difficulties are considered most significant; (b) reading proposed solutions of selected difficulties and calling for criticism and additional solutions; and (c) reporting to the general conference on the major conclusions reached in the group conferences.

#### PRINCIPAL OR GENERAL SUPERVISOR

1. To visit such classes as he is invited to visit.
2. To confer, by appointment, with such individual teachers as may wish to confer.
3. To assist in the planning of methods whereby solutions may be reached.
- d. *Step 4.* Ask each teacher to submit at the next meeting a list of the most serious teaching difficulties encountered during the interval. Each difficulty should be stated in detail and illustrated by a concrete situation.

\* For a more detailed description of this plan see Waples, Douglas, "A Program for the High-School Teachers' Institute." *School Review*, 34: 199-211.

The description of the difficulty should be followed by a list of the best solutions for the difficulty that the teacher can propose.

e. *Step 5.* Collect the difficulties submitted and combine them into one list for rating. Mimeograph the list and distribute it to the teachers for checking. The teachers should mark with the figure 3 the items considered most difficult. The items of no difficulty should be marked 1. The other items may be marked 2. By adding the numbers given to each item by each teacher, a sum is obtained for each item. The sums then indicate the relative difficulty of the items for all teachers. The same method may be used to determine the relative frequency of the items so that difficulties seldom met may be disregarded. When the items are listed in order of difficulty, those which a majority of the teachers consider to be most important may be selected for further study.

f. *Step 6.* Present the selected difficulties to the conference in order that solutions may be worked out by each group of teachers independently and during the regular meeting. Departmental groups may meet elsewhere if they prefer. The solutions found acceptable to the group should be written down by the group chairman.

g. *Step 7.* Collect and criticize the solutions with specific directions for their further study. When this is difficult for the principal to undertake, the solutions for problems common to all departments may be read to the staff as a whole and criticisms invited. The principal can frequently recommend ways of checking the solutions, or ways of arriving at more satisfactory solutions. It can safely be predicted that most of the solutions will be too general. If the principal does no more than urge that the details of each "solution" be so specific as to make their application entirely clear to him, he will accomplish much. The teachers' solutions should be illustrated in terms of the given subject matter wherever possible. Problems of class management should be solved in terms of the particular pupils concerned.

h. *Step 8.* Direct the work of each departmental group upon one major difficulty for that department. Such work may be somewhat extensive. When a given problem calls for certain information concerning the needs of the given pupils, the collection of such data may well become a major project. Work upon the strictly departmental problems may run parallel with work upon the problems common to all departments as described in Step 7.

i. *Step 9.* Whenever necessary for the morale of the staff as a whole, the departmental chairmen should report their findings to the entire staff for criticism. By selecting such reports in advance, the principal may stimulate the less active groups to accomplish more and better work.<sup>10</sup>

The effect of the criticism and discussion should be a definite plan for study and classroom experiment by each department throughout the year. The size of the problems selected and the extent of the study will naturally depend on the amount of time available.

<sup>10</sup> To this end it is, of course, essential that standard texts on the teaching of the special subjects and standard texts on general method be accessible to all



Problem 4. *To evaluate the difficulties collected.* Having collected the difficulties toward which the supervisor's attention should be directed, the next problem consists in evaluating them to determine how much attention each one should receive. This problem is best considered in two aspects, namely, how to evaluate the difficulties met by a particular staff or group of teachers, and then, how to evaluate the difficulties met by teachers in general. It is clear that the difficulties met by a given staff tend to be more specific and will usually serve best to define the work of a building or departmental supervisor. An evaluation of difficulties met by all teachers of a given grade level, however, would be more useful in formulating a program for supervisors representing the department of education of a state, county, or large city.

The following exhibit indicates a simple method of evaluating the difficulties reported by the thirty-nine junior and senior high school teachers of a small city.<sup>11</sup>

This technique calls for the evaluation of a composite list of classroom difficulties. Fifty-nine difficulties in all were collected from thirty-nine teachers representing nine departments of grades seven to twelve. The fifty-nine difficulties were first ranked for importance, then ranked again on the basis of frequency. Since the time for discussion was limited, the difficulties which were ranked below the median in each list were arbitrarily omitted from the general discussion. Some of the difficulties thus omitted were studied later by individual departments. Table III shows the ranking of the difficulties retained.<sup>12</sup>

The purpose of the table is to make clear to the teachers the fact that certain problems are common problems. If a similar table based on the rankings of any group of teachers is placed on the board and discussed, the teachers are more likely to be convinced that the problems are worth coöperative effort. The following problems are those referred to by the numbers in the left columns of the table.<sup>13</sup>

teachers. A fund of from fifteen to twenty-five dollars will purchase most of the books needed which cannot be borrowed or obtained without expense.

<sup>11</sup> Waples, Douglas, *Problems of Classroom Method*, pp. 66 ff.

<sup>12</sup> The difficulties which were ranked below the median for either frequency or importance are omitted from this table.

<sup>13</sup> The letters in parentheses refer to the departments by which the difficulties were reported: C = commercial, E = English, F = French, G = geography, H = history and social studies, L = Latin, M = mathematics, P = practical arts, S = natural science.

TABLE III

THE RANKS OF TWENTY-SIX DIFFICULTIES IN FREQUENCY AND IN IMPORTANCE AS DETERMINED BY THE HIGH-SCHOOL STAFF AS A WHOLE

NUMBER OF DIFFICULTY	RANK		NUMBER OF DIFFICULTY	RANK	
	Frequency	Importance		Frequency	Importance
2.....	3	8	29.....	27	16
5.....	6	9	30.....	20	15
7.....	24	24	32.....	4	1
12.....	7	25	33.....	14	6
13.....	8	28	34.....	15	18
15.....	5	14	36.....	9	21
19.....	13	10	37.....	11	13
20.....	25	20	38.....	28	23
21.....	22	16	39.....	16	7
22.....	26	2	40.....	23	26
23.....	10	11	42.....	29	30
24.....	18	12	44.....	12	4
27.....	19	5	45.....	17	19

2. How to motivate correct speech. (E)

5. How to make a special topic report by an individual pupil of greater benefit to the entire class. (G)

7. How to make the poor student recognize defects in his work. (H)

12. How to get pupils to complete assignments. (E) (M)

13. How to arouse the interest of pupils who expect to leave school at the age of sixteen. (G) (H) (M)

15. How to encourage the slow pupil to participate in class discussion. (H)

19. How to teach ideals, such as courtesy. (P)

20. How to arouse lazy and indifferent pupils to an interest in their work. (P)

21. How to arouse the pupil's sense of individual responsibility. (G)

22. How to teach pupils the value of concentration. (C)

23. How to teach girls higher ideals and standards in home-making. (P)

24. How to emphasize the need for accuracy. (P)

27. How to deal with pupils who can memorize but who are unable to apply general principles to life-problems. (C) (G) (H) (L) (P)

29. How to make pupils conscious of individual difficulties in learning the grammar of a foreign language. (F)

30. How to develop the ability to pick out the main points for outline work. (H)

32. How to counteract dependence upon the teacher for help and thought. (E) (F) (G) (H) (L) (M)

33. How to get the pupil to think about what he is doing and to use the more efficient methods. (P)

34. How to find varied and interesting methods of presenting uniform types of work. (E)
36. How to deal with pupils who are slow in taking dictation. (E)
37. How to make socialized recitations open-minded discussions. (G)
38. To what extent should the teacher direct socialized recitations? (E)
39. How to deal with the over-enthusiastic class so that the pupil reciting may be given a chance. (H)
40. How to counteract chorus answers. (H)
42. How to keep the interest of the brighter pupils during repeated explanation for the slower pupils. (S)
44. How to break up a teacher-pupil recitation and get the pupil to recite for the benefit of the class. (H)
45. How to plan a successful check system for tools. (P)

While the table does not show the order in which the difficulties should be treated by the supervisor, the order was easily determined by the supervisor concerned. For example, the difficulty first selected was number 32, which is ranked first in importance and fourth in frequency in the list of fifty-nine difficulties reported. This difficulty reads, "How to counteract the pupil's dependence upon the teacher for help and thought." The problem considered next most important by the teachers, namely, difficulty number 22, occupies the lowest rank with respect to frequency. The supervisor decided to treat this incidentally because the nature of the difficulty is not clearly defined, namely, "How to teach pupils the value of concentration." Difficulty number 2, however, was selected for prompt attention since it is entirely specific and since it is ranked third in frequency and eighth in importance. It should be apparent that such data afford considerable help to the supervisor in selecting difficulties of general interest to the staff for discussion and study in connection with general staff meetings, departmental meetings, or interviews with individual teachers.

The technique for evaluating the difficulties for all teachers of a given grade level is similar to the technique already proposed for anticipating the difficulties of beginning teachers. That is to say, the difficulties are represented by typical classroom activities and the activities are rated by properly qualified judges with respect to criteria upon which their judgments are found to be statistically reliable.

Table IV shows the evaluations in terms of decile ratings by teachers of five different types with respect to four different

TABLE IV  
DECILE RANKS OF ACTIVITIES AS RATED BY REPRESENTATIVE GROUPS OF TEACHERS

ACTIVITIES FROM CHECK LIST	SENIOR HIGH SCHOOL						JUNIOR HIGH SCHOOL						INTERMEDIATE						KINDERGARTEN PRIMARY						RURAL						
	HIGH SCHOOL			HIGH SCHOOL			HIGH SCHOOL			HIGH SCHOOL			INTERMEDIATE			INTERMEDIATE			KINDERGARTEN PRIMARY			KINDERGARTEN PRIMARY			RURAL			RURAL			
	F*	D	I	S	C		F	D	I	S	C		F	D	I	S	C		F	D	I	S	C		F	D	I	S	C		
Division I, Subdivision A Teaching Subject Matter																															
A. Planning:																															
1. Selecting activities to be planned:																															
(a) Selecting objectives .....	3	1	1	1	1	3	1	1	1	1	1	1	4	1	1	1	1	2	3	1	1	1	1	1	4	2	1	1	1	1	1
(b) Planning selection and organization of subject matter .....	2	1	1	1	1	2	1	1	1	1	3	2	1	1	1	1	1	2	3	1	1	1	1	1	1	2	1	1	1	1	1
(c) Planning methods of developing interests .....	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1
(d) Planning methods of instruction ...	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1
(e) Planning methods of assigning work	2	2	1	1	1	1	1	2	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	2	3	3	1	1	1	1
(f) Planning methods of providing sufficient opportunity for pupils' activities	2	1	2	1	1	2	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	3	2	1	1	1
(g) Planning facilities for individual study	3	1	3	1	2	2	1	2	2	1	4	1	3	1	1	4	1	1	4	1	1	4	1	1	4	1	6	4	2	1	1
(h) Planning methods of evaluating pupils' needs, abilities, and achievements	3	1	1	1	1	2	1	1	2	1	2	1	4	1	1	1	1	1	2	1	1	1	1	1	5	1	5	2	1	1	1
(i) Planning methods of developing teachers' personal traits .....	5	1	3	1	3	7	2	2	2	1	3	7	1	3	1	3	6	1	7	5	5	7	1	8	2	5	1	8	2	5	1
2. Finding adequate time for planning ...	2	1	5	7	2	3	1	5	6	2	1	1	3	5	1	3	2	5	9	4	4	1	5	8	3	4	1	5	8	3	1
3. Finding sufficient methods of planning...	3	1	3	2	2	2	2	3	3	2	2	1	3	2	1	3	5	5	6	4	4	1	6	2	2	4	1	6	2	2	1
4. Writing and recording plans .....	3	3	5	1	2	2	5	6	4	2	2	4	3	2	4	3	4	3	5	6	4	2	5	6	2	4	2	5	6	2	2
5. Evaluating and revising plans .....	3	2	2	4	2	3	4	6	3	4	6	3	4	3	4	3	4	3	5	5	6	1	7	5	4	6	1	7	5	4	4
6. Filing and preserving plans .....	4	7	8	8	7	5	7	8	8	7	5	5	7	9	7	6	8	10	9	9	6	6	8	8	8	6	6	8	8	8	8
7. Utilizing plans .....	2	7	4	3	3	2	6	8	8	4	1	5	3	5	3	2	3	7	5	8	5	3	8	6	5	4	6	5	4	6	5

\* The letters F, D, I, S, and C represent the criteria by which the ratings are made. F means Frequency of Performance, D means Difficulty of Learning to perform, I means Importance, S means Desirability of Teaching the activity in the training school, and C means Composite Rating.

criteria, to which is added a composite score in which the ratings for the four criteria are combined.<sup>14</sup>

From these data, which are available in the report referred to, any supervisor may determine the relative importance of the type activities for the teachers of any of the five grade levels. When to the rating by the teachers themselves are added the ratings by other professional groups, such as supervisors, principals, and professors of education (as shown in the reference), it is apparent that the supervisors' own judgment regarding the relative significance of the difficulties confronting the teachers supervised is much more likely to be in accord with the facts.

Problem 5. *To analyze a given type-difficulty into the specific difficulties involved.* The techniques described for the preceding supervisory problems are useful in collecting data regarding the nature and relative significance of the teaching situations that the teacher cannot meet effectively without help. From the examples shown, the reader will note, however, that many of the difficulties thus determined are extremely general—in most cases so general that they cannot be disposed of until they have been broken up into more specific difficulties. We then have need for a technique of reducing a general difficulty to its elements so that the elements may be disposed of one at a time.

The following exhibit<sup>15</sup> presents a method of making such an analysis of a typical difficulty, namely, "How to set up standards of achievement."

A table [see Table V] is shown below which contains material of two sorts. The six items to the left of the table represent sources from which difficulties may be obtained. The items in the upper right-hand corner of the table represent techniques or methods of finding the difficulties from each source. The sources and the techniques are shown in this way to emphasize the fact that certain techniques may be applied to many different sources; also that certain sources may be consulted by means of various techniques. The arabic numbers in the squares to the right of the sources and below the techniques designate particular techniques applied to particular sources. These numbers are used in later reference to the table.

While the six techniques at the top of the table by no means include

<sup>14</sup> For the original table showing similar ratings for each of 913 type activities, see Summary Table A, Part II, Charters, W. W., and Waples, Douglas, *The Commonwealth Teacher-Training Study*. University of Chicago Press.

<sup>15</sup> Prepared by Warren R. Good, University High School, University of Michigan. The study from which the above is quoted appears in the unpublished *Official Record of the Commonwealth Teacher-Training Study*, Chapter VI.

TABLE V  
SYSTEM OF TECHNIQUES AND THEIR APPLICATION \*

SOURCES	A. INDEPENDENT ANALYSIS OF ACTIVITY BY INVESTIGATOR	TECHNIQUES				
		B. ANALYSIS OF AC- TIVITY IN TERMS OF SOURCE DATA	C. OBSERVATION	D. PERSONAL INTERVIEW	E. CORRESPONDENCE (CHECK LIST)	F. TESTING AND EXPERIMENTATION
I. Literature (a) on objectives .....	1	2				
(b) textbooks .....		3				
(c) solutions for teaching problems .....		4				
II. Pupils' (a) statements .....				12		
(b) test results .....		5				19
(c) classroom behavior .....			10			20
III. Teachers' (a) records .....		6				
(b) judgments .....				13	17	
(c) classroom performances.			11			21
IV. Supervisors' (a) records .....		7				
(b) judgments .....				14	18	
V. Community members' (a) records ....		8		15		
(b) judgments..				16		
VI. Minor school officials' (a) records .....		9				
(b) judgments..						

\* The numbers indicate applications of techniques to sources which are considered appropriate. The Arabic numbers facilitate references to the applications.

all of the methods that may be used in analyzing difficulties, they undoubtedly represent the techniques that are most frequently used and that are most readily applied by the supervisor. Since it is not intended that the supervisor will take time to conduct an intensive investigation to determine the difficulties, the six techniques here shown are simply methods whereby the sources may be used offhand to suggest specific difficulties involved in a general difficulty. It is true, however, that any supervisor who does undertake a systematic collection of difficulties can obtain a far larger number by applying to each type of actual source material the techniques appropriate to each source.

*Difficulties selected.* The difficulties suggested by applying the techniques to the sources (in the order indicated by the arabic numbers on the table) are shown in the following paragraph. That is to say, the specific difficulties appearing in the first paragraph, under Technique Number 1, were obtained by independent analysis of the activity ("defining standards

of pupils' achievements"). The activities appearing in the second paragraph, headed Technique Number 2, were obtained by considering the literature on the objectives of teaching with reference to the manner of defining standards of pupils' achievements. The difficulties shown in the remaining paragraphs were similarly obtained by applying the techniques to the sources as indicated by the Arabic number designating the paragraph. In each paragraph, the difficulties shown are merely illustrative.

Technique No. 1. *Independent analysis of activity in terms of difficulties anticipated.* How to select desired outcomes in pupils' work; how to make standards flexible enough to obtain best efforts of each pupil without making excessive demands of any; how to determine character of work pupils are able to do; how to coördinate tentative standards with those of other teachers; how to incorporate formal requirements of department or school accrediting agencies in tentative standards; how to measure knowledge, skill, ability so as to know when achievement is adequate; how to adjust standards so that pupils' achievements are evaluated in terms of both individual abilities and objective standards; how to keep standards high enough to reduce the "getting-by" attitude without making excessive demands upon certain pupils; how to choose pupils' traits (such as neatness, accuracy, promptness) to be credited in marking; how to determine the credit value to be attached to each of the elements upon which marks are based; how to set standards within the abilities of the majority of the class.

Technique No. 2. *Analysis of activity in terms of literature on objectives:* How to formulate standards which are consistent with or which contribute definitely to the attainment of recognized objectives of education; how to formulate standards which contribute definitely to the attainment of the objectives of special subjects and courses, e.g., stenography, salesmanship, shop mathematics, public speaking; how to formulate standards which minister properly to the objectives of any particular subject.

Technique No. 3. *Analysis of activity in terms of data from textbooks:* How to select from textbooks essential outcomes of course as indicated by the authors' organization and emphasis of material; how to modify standards to compensate for lack of reading materials, e.g., when lack of facilities necessitates special assignments with meager library of literature for a given course.

Technique No. 4. *Analysis of activity in terms of data from books on methods of teaching:* How to determine extent to which certain types of material need to be emphasized; how to determine proper requirements in prescribed subject matter for pupils who must leave school early to earn money.

Technique No. 5. *Analysis of activity in terms of pupils' test results:* How to determine pupils' present attainments as indicated by test results; how to determine practicability of standards as indicated by test results; how to diagnose pupils' needs and difficulties as indicated by analysis of test papers and responses.

Technique No. 6. *Analysis of activity in terms of teachers' records:*



How to determine prevailing standards as indicated by teachers' course outlines and records.

Technique No. 7. *Analysis of activity in terms of supervisors' records*: How to organize criticisms and suggestions in supervisors' reports so that they may be the means of improving tentative standards.

Technique No. 8. *Analysis of activity in terms of written or printed communications from community members*: How to organize and utilize suggestions and criticisms found in letters from parents and other community members (e.g., with regard to specific needs of commercial pupils).

Technique No. 9. *Analysis of activity in terms of records of minor school officials*: How to utilize reports of minor school officials (e.g., of truancy or of attendance officers) with regard to needs, attitudes, home environment of individual pupils that affect the standards set.

Technique No. 10. *Observation of pupils' classroom behavior*: How to judge appropriateness of tentative standards in terms of pupils' attitudes and interests as revealed in the classroom.

Technique No. 11. *Observation of teachers' classroom performance*: How to judge the practicability of standards in terms of teachers' ability to attain them as revealed by classroom teaching.

Technique No. 12. *Personal interviews with pupils*: How to formulate standards which will at the same time meet necessary requirements and capitalize pupils' interests and desires; how to collect through interviews the pupils' criticisms of existing standards and their statements as to desirable changes.

Technique No. 13. *Personal interviews with teachers*: How to collect and organize teachers' judgments as to what standards should be.

Technique No. 14. *Personal interviews with supervisors*: How to obtain judgments and help from supervisors in setting up standards.

Technique No. 15. *Personal interviews with community members*: How to adjust standards to needs of pupils as indicated by community members (e.g., in preparing pupils for specific positions or colleges).

Technique No. 16. *Personal interviews with minor school officials*: How to utilize judgments of minor school officials (e.g., of school mechanics with regard to phases of shopwork, of attendance officers with regard to home conditions affecting certain pupils).

Technique No. 17. *Correspondence with teachers*: How to make standards consistent with prevailing standards in an administrative unit (e.g., the state) as indicated by correspondence or check list returns from teachers in other systems.

Technique No. 18. *Correspondence with supervisors*: How to obtain constructive criticisms of existing standards from supervisors of other school systems.

Technique No. 19. *Testing and experimentation with pupils' test results*: How to evaluate different standards in terms of experimental test results of typical classes.

Technique No. 20. *Testing and experimentation with pupils' classroom behavior*: How to evaluate different standards in terms of resulting classroom attitudes and behavior.



Technique No. 21. *Testing and experimentation with teachers' classroom performance*: How to determine practicability of various standards as indicated by degree of teachers' success in meeting each of the standards.

*Classification*. The foregoing difficulties were classified into groups of a somewhat logical character. The purpose of such a classification is to simplify an orderly treatment of the problems and to facilitate the definition and application of whatever principles the supervisor wishes to stress in relation to the difficulties of each group.

It is probably not necessary here to repeat the specific difficulties of the foregoing list. In order to illustrate the classification it may be sufficient to name the headings under which the specific difficulties were classified. The four headings are as follows:

1. Determining the extent to which existing standards are met.
2. Defining desired standards.
3. Adapting revised standards to existing conditions.
4. Testing and evaluating standards as revised.

This method of analyzing the difficulties of teachers may impress the reader as needlessly detailed. For most supervisory purposes the illustration undoubtedly carries the analysis beyond the needs of the practical situation. However, the depth to which any teaching difficulty is analyzed is a matter that must be determined by the individual supervisor with reference to the needs of the teachers concerned. Generally speaking, the untrained teacher is not able to benefit by the solution of specific difficulties unless the specific difficulties can be clearly recognized as factors in actual classroom situations. It is at all times essential that this connection be made explicit. Consequently in breaking up a general classroom difficulty in order to show the teacher how to overcome it, the wise supervisor will stimulate the teacher to make his own analysis—thereby avoiding the risk of confusing the teacher by an analysis that is needlessly detailed.

Problem 6. *To collect solutions for the difficulties*. The substance of this article, as contained in the preceding pages, has been concerned with the collection, evaluation, and analysis of teaching difficulties. The reason why most emphasis is given to these techniques is, of course, simply that upon the selection of the difficulties depends the value of the supervisor's efforts to remove them. Unless extreme care is exercised in collecting data that indicate the difficulties which teachers most need to overcome, the supervisor's time may be wasted in prescribing for

difficulties that are irrelevant to the primary objectives of teaching.

Yet in spite of the predominating emphasis of techniques for the definition of significant difficulties, it is also clear that the definition of difficulties is merely preliminary to what is after all the supervisor's main work, namely, the stimulation of teachers to remove the difficulties. Solutions for teaching difficulties may be arrived at in many different ways. They may be reached by any one of the techniques that the individual teacher may employ in solving a teaching problem. Among these the more obvious are conducting interviews with pupils, selecting appropriate methods from professional literature, corresponding with specialists in the teaching of the subject, and classroom experiment with various methods that are obtained from the sources mentioned or that are developed by the teacher's own ingenuity.

For the purposes of the present discussion, the various methods of solving a difficulty may be reduced to two as regarded from the standpoint of a supervisor; the extent of the teachers' experience and professional background will usually decide which of the two methods is preferable. After the difficulties have been properly defined, evaluated, and analyzed, the first method consists in directing teachers to sources from which they can select ready-made solutions independently. The second method consists in providing a variety of solutions and directing such experiment by the teacher as will best determine which method is most appropriate and why.

To describe one method whereby teachers may be stimulated to select their own solutions, a list of steps is presented. The steps outline a somewhat intensive study<sup>16</sup> that was undertaken to collect from the practice of superior teachers all methods that might be used in teaching a single unit in a course in junior high-school mathematics. On this account the technique is more detailed than the typical teacher should be expected to apply. It should be easy for a supervisor, however, to indicate such of the steps as may be omitted without loss. Full description and illustration of each step may be found in the study referred to. Taken as they stand the steps should define clearly enough a

<sup>16</sup> Waples, Douglas, and Stone, Charles A., *Teaching by Units*. University of Chicago.

technique that has been found entirely reliable in obtaining solutions from all available sources.

The following technique is recommended for the collection of effective methods for teaching a unit in any subject capable of analysis into specific learning elements or operations:

1. Select a single unit for investigation which has demonstrable social value.
2. Record in detail the classroom activities of pupils and teachers during the time devoted to instruction in the given unit in the given school or schools.
3. Classify the activities thus recorded and regard the major headings as tentative objectives or desired outcomes in the teaching of the unit.
4. Refer the classified list of activities to representative specialists in the given field and ask for judgments regarding the completeness and adequacy of the headings as objectives. Revise the objectives in accordance with the returns.
5. Apply tests, designed to cover the more significant objectives, to the pupils of the classes concerned. Record and tabulate the frequency of the errors made on the tests.
6. Collect from professional literature and from expert teachers of the subject the most efficient methods of performing the operations in which the errors occur. Then classify the methods by type.
7. Devise tests applicable to each type of method separately. Give the tests and define difficulties in terms of the type-methods that pupils are found unable to apply. Determine the relative seriousness of the difficulties by the number of pupils unable to apply each method.
8. From professional literature and from specialists in the teaching of the subject collect teaching methods useful in removing the difficulties of each type and apply the methods to the pupils confronting each type of difficulty. Test again to determine what difficulties persist.
9. Identify persons in occupations unrelated to school teaching who have daily occasion to solve the persistent difficulties. Interview such persons to obtain new methods of overcoming the learning difficulties.
10. Continue to experiment with the teaching methods obtained from all sources until methods are found which remove the difficulties presented by the given unit as taught by the given staff in the given school.

The second procedure in solving the teachers' difficulties is entirely conventional. It consists in presenting several appropriate methods of teaching a given unit of subject matter from which the teacher may select those that are found to produce the best results. For example, at least nine distinct methods have been developed for introducing the principle of positive and negative numbers to a class in elementary algebra. The procedure to be followed by the teacher in selecting the most useful method

might well consist in using each of the more promising methods with a different class when the given unit is introduced. If each presentation is confined to one period, and if the classes are roughly equivalent in ability, the test at the close of the period will afford useful evidence regarding the method which the given teacher is best able to use.

#### LIMITATIONS OF THE TECHNIQUE DESCRIBED

Various conditions combine to place the burden of proof upon difficulty analysis as a supervisory technique. Most of these conditions are entirely artificial and constitute no objection to the technique beyond the fact of its novelty and the labor of collecting the necessary data. Several of the conditions, however, reveal attitudes of public school supervisors which contain some truth and which must be seriously considered. A few of the more plausible objections may be enumerated as follows:

1. One of the supervisors' tasks is to acquaint teachers as directly as possible with the duties each has to perform. Such duties are more clearly explained as *duties* than as difficulties for which solutions need to be collected.

2. Another of the supervisor's tasks is to explain the principles that teachers should observe in performing their classroom activities. Such principles also are best presented as *principles*, thus economizing the time that would be required to define teaching difficulties, to collect methods of solving the difficulties, and only then to define the principles that serve to explain why the methods are effective.

3. The difficulties met by inexperienced teachers in their first few weeks in a classroom are usually highly superficial and involve matters of school routine such as filling out the proper blanks, routing pupils, and the like. Hence the supervisor's attention to such difficulties will preclude attention to the more significant duties of presenting subject matter clearly, establishing cordial relations with pupils, and others of even greater significance to the teacher's professional growth.

4. The difficulty of a given classroom situation is largely subjective. A particular situation may be difficult for one teacher and entirely simple for another teacher. Furthermore, a situation which presents a serious difficulty to one teacher at one time may be readily met by the same teacher at another time. Hence for

any given teacher a list of difficulties requiring supervisory assistance is too temporary to constitute a reliable basis for supervision.

5. Since the relative importance and difficulty of any teaching situation depend upon the abilities, interests, and objectives of the teachers concerned, the selection of such type situations as a basis for supervision must be made with reference to the individual teachers concerned. This necessarily prevents the formulation of a supervisory program that can be applied to all teachers of a given school, department, or grade.

6. Supervision conducted on the basis of classroom difficulties is less economical of time. A classroom difficulty usually arises from the fact that the teacher must apply two or more principles in combination to a group of related teaching activities in order to find methods of meeting the total teaching situation. That is, any given difficulty may involve various teaching activities and various theoretical principles. Hence the teacher must first identify the elements and then organize them, in order to reach a satisfactory procedure. This method of study makes for much repetition, since the same activities and the same principles are likely to arise in connection with many different classroom difficulties. It is best for the supervisor to teach the activities and principles *as such*, by presenting them in some logical organization. The difficulties are not logically related.

7. Finally, it may be objected that supervision on the basis of classroom difficulties cannot be organized psychologically except after careful diagnosis of the given staff of teachers. The fact that a majority of teachers have difficulty in meeting a given situation does not necessarily mean that the individual teacher will feel the situation to be problematic. To stimulate the teacher's energies toward self-help it is necessary that the teacher should feel the situation to be important at the time the supervisor's suggestions are made. This condition exists only when the individual teacher has sufficient background to anticipate his individual need for the supervisor's suggestions at the time the suggestions are given.

#### COMMENT REGARDING THE LIMITATIONS

The first objection may be granted. Whenever the activities of the given teacher are clearly inefficient, the supervisor's plain

duty is to prescribe efficient activities and to teach the teacher to perform them. In addition the supervisor should take pains to secure the teacher's good will and to explain why the procedure recommended is superior to the former procedure.

The second objection is valid. A teacher who uses ineffective methods of drill through ignorance of the principle of distributed practice should have the principle explained by the supervisor in such a way that the superiority of distributed practice over concentrated practice is made entirely clear. There is here no reason for emphasizing a difficulty beyond the point of showing that one method produces better results than the other with no more effort on the teacher's part.

The third objection is easy to evaluate when applied to the concrete case. There can, of course, be no mechanical procedure which should offset the supervisor's conviction that certain difficulties reported by inexperienced teachers are trivial. The technique proposed for the definition of beginning teachers' difficulties contains a satisfactory answer to the objection. Only a literal adherence to a set formula would prevent a supervisor from dividing his efforts between situations highly important to the teacher at the time (such as matters of routine) and situations of greater significance (such as how to present subject matter effectively to a new class of pupils).

The fourth objection lies in the belief that a list of actual difficulties confronting a particular teacher at any one time has only temporary value. The same objection could be raised against a list of any other items deserving the supervisor's attention. The technique proposed for the evaluation of teaching difficulties should meet the objection fairly, particularly the technique recommended for the evaluation of difficulties in terms of type-activities performed by teachers of a given grade level.

To what extent the fifth objection should preclude the use of the difficulties as here recommended will depend upon the ability of the individual supervisor. It is assumed that the value of supervision and hence of any supervisory program depends upon its helpfulness to the individual teacher. On this assumption it may be argued that the lack of standardization caused by the individual differences of teachers is merely the price to be paid for effective supervision.

Regarding the sixth objection, it is true that efficient methods of teaching can be acquired by the teacher in less time if a supervisor presents the methods as activities to be performed. However, it is usually as important for teachers to learn how to evaluate classroom problems and how to solve them independently as it is to bring about the teacher's adoption of certain specific methods. Here again the objectives of supervision are involved. The time required to train teachers to overcome their difficulties may be justified if one objective of supervision is to help teachers to help themselves.

The seventh objection involves the question as to whether the supervisor should try to motivate the suggestions offered to individual teachers. If a teacher does not feel a situation to be difficult at the time when the supervisor finds the teacher failing to meet the situation, the supervisor should adopt any device that will increase the teacher's willingness to improve. In the writer's experience it has usually been possible to start from a difficulty about which the teacher is genuinely concerned and then to relate the teacher's interest to the situation which he is failing to meet.

#### EXISTING DATA ON RELIABILITY OF THE TECHNIQUES DESCRIBED

This concluding section states very briefly what data exist regarding the reliability of the six procedures proposed for the treatment of the six supervisory problems. Where the nature of the data cannot be made clear in a short paragraph, the reader is referred to original sources where the data are presented at length.

1. The technique proposed for anticipating the difficulties of beginning teachers is statistically reliable. Evidence to support this statement may be found in Chapter I, Section 10, *The Commonwealth Teacher-Training Study*.

2. There are no objective data known to the writer that may be used to indicate the reliability of the technique described for making teachers conscious of actual difficulties of which they are only vaguely aware. The extent to which the self-rating scale and the problem exercises are reliable means of accomplishing this purpose must depend on the supervisor's own judgment after the techniques have been applied. However, an experimental



check has revealed no type-difficulties met by beginning teachers that are not covered by the self-rating scale.<sup>17</sup>

3. That the technique for collecting the significant difficulties of a given staff of teachers is highly reliable may be inferred from the fact that the same procedure applied to the same staff at different times shows few changes in the list of difficulties reported. The proportion of difficulties added and omitted in subsequent collections from the same staff is less significant here than to suggest that individual supervisors collect difficulties from their own staffs in the manner described in connection with Problem 3. A count of the changes occurring in the successive lists will serve to check the reliability of the procedure for the given schools and will yield highly useful data as well.

4. The reliability of evaluations for a given list of difficulties as made by the individual teachers of a given school has not been determined statistically. Such evidence as the writer has collected would indicate that such evaluations are not reliable in terms of accepted statistical standards, but this may be expected from the fact that any difficulty is either met or evaded in a certain proportion of time by the individual teacher. Hence it is not to be expected that any small group of teachers will rate a list of difficulties consistently if the ratings are made at monthly intervals or longer. It is probably an argument in favor of the use of the difficulty as a basis for supervision that it is so sensitive to changes in the nature of the classwork and in the professional attitudes of young teachers.

The technique recommended for the evaluation of situations for teachers of a certain grade level in general is highly reliable as tested by statistical evidence. For data in support of this statement the reader is referred again to Chapter I, Section 10, *The Commonwealth Teacher-Training Study*.

5. The technique recommended for the analysis of type-difficulties is reliable to the extent that careful application of this technique by one investigator is found to identify all elements of the difficulty that are found by other investigators using the same or other techniques. For the reasons mentioned it is easy to carry the analysis of specific difficulties too far. Hence an

<sup>17</sup> When used as a check-list, the reliability of the list of activities contained in *The Commonwealth Teacher-Training Study* is greater than any existing list of difficulties, since the list of activities is known to be sufficiently complete for the purpose. See the report of the Study for supporting data.



experimental check on the completeness to which any given difficulty *might* be analyzed would be somewhat absurd.

6. The reliability of the technique described for the solution of teaching difficulties naturally depends upon the value of the solutions reached. Since the value of solutions for any teaching difficulty depends among other factors upon the teacher's objectives, the abilities of the class, and the teacher's technical skill, there are no objective data that can be used to check the reliability of the method of obtaining the solutions. However, if one assumes that the solutions obtained are all useful under certain conditions, the procedure may be tested by the completeness with which available solutions are collected. Judged by this criterion, the technique is reliable in so far as it serves to secure solutions not only from all professional sources but from sources beyond the teaching profession as well.<sup>18</sup>

In conclusion the writer wishes to express his regret that the supporting references contained in the footnotes are almost all confined to his own publications. This unfortunate fact is due in part to a suggestion of the editorial committee and in part to the scarcity of data in the literature that may be used to validate the particular techniques herein described.

<sup>18</sup> See Waples, D., and Stone, C. A., *The Teaching Unit: A Type Study* (Appleton, 1929), Chapter VI, for discussion of such sources and evidence regarding the completeness with which solutions are obtained for the difficulties met in teaching a given unit of subject matter.

## CHAPTER VIII

### CLASSROOM DIFFICULTIES OF STUDENT TEACHERS

ERNEST M. HANSON

Earlier efforts to analyze and evaluate classroom activities have varied considerably in method, in procedure, and in the nature of the data gathered. Many investigators have studied supervisory problems to determine what is actually being done on the job, without regard to efficiency or difficulty. The investigation here reported concerns the teaching activities of novices from the standpoint of the difficulties, actual and relative, which they present.

All student teachers at the University of Minnesota receive training in methods of classroom procedure before doing any practice teaching. A knowledge of the difficulties anticipated by supervisors will help to forestall classroom weaknesses. A catalogue of the difficulties commonly experienced by practice teachers will serve as a guide for instructors of special methods courses. Upon the basis of such a list they may modify their courses so that emphasis is given to methods fruitful in overcoming the more important deficiencies.

This investigation of student teaching was made in the University of Minnesota High School and in the public schools of Minneapolis. The purposes of the investigation were:

1. To suggest a technique for determining the general classroom difficulties of student teachers.
2. To discover the general classroom activities that are presenting difficulty to student teachers and the relative degree of difficulty of these activities.
3. To determine whether the student teachers are conscious of their difficulties.
4. To discover whether the student teachers' problems in the Minneapolis public schools are similar to the classroom problems of student teachers in the University High School.

An approach to the study was made by compiling a check list

of activities. An array of all activities of classroom procedure would be unwieldy, so a compilation was made of those that were supposedly presenting difficulty. An unpublished report of a questionnaire study of classroom activities presenting difficulty to ex-practice teachers during their first year of teaching after graduating from the University of Minnesota constituted one source from which activities were selected. The others were added by critic teachers, including the writer, who made careful observation of practice teaching difficulties for a number of weeks.

The list was presented in person by the writer to a number of practice and critic teachers for criticisms. They were asked to interpret the recorded activities in an attempt to avoid ambiguity. A further check was made by having a number of mimeographed lists tried out in the classroom. After several revisions the check list was put into final form.

Two types of blanks were constructed, one to be used by the practice teachers and the other to be used by the critic teachers. The forms were similar, differing only in the preliminary directions and in the fact that a group of supervisory activities was added to the check list for practice teachers but was not included in the critic teachers' list.

The writer presented the blanks in person to the critic teachers and discussed with them the activities on the lists and the method of collecting the data. The critic teachers were also given the practice teacher blanks and were asked to present and discuss them with the practice teachers.

During certain designated periods when the student teachers were at work, lesson presentations were to be carefully scrutinized and the difficulties encountered by the student teachers recorded on the check lists by the critic teachers; there was to be, also, a self-rating by each of the practice teachers for the same lessons. The purpose of the latter rating was to discover whether the practice teachers were conscious of their own difficulties.

The teachers were instructed to record their lesson analyses by placing three checks after each activity which gave serious difficulty and demanded close attention; one check after those that were minor, but sufficiently important to require a conscious effort to overcome; two checks after those activities which were

less than serious in nature but more than minor; and a zero after those activities which presented no difficulty.

*Data from one hundred and seventy-six check lists were tabulated, eighty-eight from critic teachers and the same number from practice teachers.* Forty-four of these were from each of the following teacher-groups: (1) critic teachers in the University High School, (2) critic teachers in the Minneapolis public schools, (3) practice teachers in the University High School, and (4) practice teachers in the Minneapolis public schools.

More data were available from the University High School but, for purposes of strict comparison, the amounts used were held identical.

Lesson presentations in academic subjects only were studied. All industrial, commercial, academic-subject-laboratory work was excluded and also work conducted on the "contract plan."

The data were summarized by recording a figure 3 on the work sheet for each activity receiving three checks on the check list; 2 for each activity receiving two checks; 1 for each activity receiving one check; and 0 for each activity receiving a zero. For each separate activity the frequency with which it received three checks was determined. Similarly the number of zeros, ones, and twos were totaled for each activity.

Hereafter an activity that received three checks during a certain recitation is called an activity of the *third degree of difficulty*; one that received two checks, an activity of the *second degree of difficulty*; one with one check, a *first degree of difficulty*; and one that received a zero is considered an activity of *zero degree of difficulty*.

The activities on the check lists were classified under the following headings: I. Questioning; II. Discipline; III. Lesson Planning; and IV. Miscellaneous Activities. These activities are presented in detail later in the report.

Tables I and II present data showing to what extent practice teachers of the University High School are having difficulty with certain types of activities in questioning. Table I gives the activities in rank order of difficulty as determined by the critic teachers. The first vertical column lists the activities as numbered on the check list. The second column gives the rank order of difficulty of the activities as determined by the critic teachers.

TABLE I

COMPARATIVE RANK ORDER OF DIFFICULTY OF ACTIVITIES IN QUESTIONING  
BY THE CRITIC AND PRACTICE TEACHERS OF THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	ACTIVITY—GROUP I	RANK C. T.*	RANK P. T.**	RANK C. T. AND P. T.
11	Stimulating interest through skillful questioning .....	1	1	1
8	Asking open questions that invite confused chorus responses .....	2	3	3
10	Getting all pupils to participate .....	3	2	2
3	Making use of pupil reactions in phrasing new questions .....	4	5	4
12	Accepting careless, fragmentary responses .....	5	8	8
7	Stating questions so that they are clearly understood by the class .....	6	6	5
1	Asking definite questions .....	7	7	7
9	Getting pupils to volunteer and to contribute .....	8	11	10
5	Asking thought-provoking questions...	9	4	6
2	Phrasing questions that do not contain answers .....	10	9	9
4	Avoiding calling on the bright pupils to the exclusion of the others .....	11	10	11
6	Avoiding too many "Yes" and "No" questions .....	12	12	12

\* Critic teachers.

\*\* Practice teachers.

The third column gives the comparative rank of difficulty according to the practice teachers as they analyzed their own lesson presentations. The last column gives the rank on the basis of the composite scores of the practice and critic teachers.

Table II presents the data from which the ranking in Table I was made. The first horizontal row of figures is read in this way: activity number 1 (asking definite questions) was recorded a zero degree difficulty in 22 lessons by the practice teachers and in 27 lessons by the critic teachers of the University High School; the same activity was recorded a first degree difficulty in 9 lessons by the practice teachers and in 11 lessons by the critic teachers; it was a second degree difficulty in 8 lessons by the practice teachers and in 4 by the critics; a third degree difficulty in 5 by the practice teachers and in 2 by the critics. The index

TABLE II

FREQUENCY WITH WHICH QUESTIONING ACTIVITIES WERE RECORDED, WITH THE VARIOUS DEGREES OF DIFFICULTY BY PRACTICE TEACHERS AND CRITIC TEACHERS IN THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	22	27	9	11	8	4	5	2	40	25	65
2	24	31	10	9	10	4	0	0	30	17	47
3	17	19	14	19	9	4	4	2	44	33	77
4	27	36	11	4	5	2	1	2	24	14	38
5	14	24	17	17	7	3	6	0	49	23	72
6	33	33	6	9	5	2	0	0	16	13	29
7	12	24	23	13	7	4	2	3	43	30	73
8	19	20	10	12	5	5	10	7	50	43	93
9	31	30	10	7	2	4	1	3	17	24	41
10	15	25	9	5	6	10	14	4	63	37	100
11	6	13	17	22	5	6	15	4	72	46	118
12	24	24	10	13	8	2	2	5	32	32	64

of difficulty by the practice teachers is 40, by the critics, 25, and by a summation of the two, 65.

The *index of difficulty* is derived by taking the sum of the number of first degree difficulties, two times the number of second degree difficulties, and three times the number of third degree difficulties. For example, the index 40 for practice teachers was derived by taking 9 plus 16 (or  $2 \times 8$ ) plus 15 (or  $3 \times 5$ ). The index of difficulty, then, is a single number representing the relative degree of difficulty of that particular activity as rated by a certain teacher-group. It considers not only the number of lessons in which the activity presented some difficulty to the practice teachers, but also the degree of difficulty presented.

Thus, by arranging the index of difficulty figures in descending order according to size, we are able to list the activities to which the indices refer, in order of their difficulty. For example, in the practice teacher index of difficulty column we find 72 the highest number. Activity number 11 (stimulating interest through skillful questioning), then, is considered by the practice teachers to be their greatest questioning difficulty. Index 63 is the next highest, which ranks activity number 10 (getting all pupils to participate in the recitation) second highest in difficulty.

Table I was derived by arranging the index of difficulty scores of Table II in descending order, thus ranking the activities to which the indices belong in a descending order of difficulty as rated by the various teacher-groups of University High School.

The practice and critic teachers are agreed that "stimulating interest through skillful questioning" is the most difficult of the questioning activities. This activity is a vital problem, as the inability of student teachers to overcome this difficulty was evidenced by critic teachers in 32 out of the 44 lessons. If practice teachers fail to overcome this difficulty in over 80 per cent of the lessons, certainly this should be a challenge to the critic and "methods course" teachers to make special effort in preparing the students to meet it.

"Asking open questions that invite confused chorus responses" was ranked second by the critics and third by the practice

TABLE III

COMPARATIVE RANK ORDER OF DIFFICULTY OF ACTIVITIES IN QUESTIONING  
ACCORDING TO THE CRITIC AND THE PRACTICE TEACHERS IN THE MINNEAPOLIS  
PUBLIC SCHOOLS

ACTIVITY NUMBER	ACTIVITY—GROUP I	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
11	Stimulating interest through skillful questioning .....	1	1	1
10	Getting all pupils to participate .....	2	2	2
5	Asking thought-provoking questions...	3	3	3
3	Making use of pupil reactions in phrasing new questions .....	4	6	4
4	Avoiding calling on the bright pupils to the exclusion of the others .....	5	4	5
9	Getting pupils to volunteer and to contribute .....	6	7	6
7	Stating questions so that they are clearly understood by the class .....	7	9	7
12	Accepting careless, fragmentary responses .....	8	10	9
8	Asking open questions that invite confused chorus responses .....	9	5	8
1	Asking definite questions .....	10	8	10
2	Phrasing questions that do not contain answers .....	11	11	11
6	Avoiding too many "Yes" and "No" questions .....	12	12	12

teachers. It was found to be a difficulty of some degree by the former teacher-group in 24 lessons and by the latter in 25 lessons.

"Getting all pupils to participate" is ranked third by the critics and second by the student teachers. Here we find an important fact in that the practice teachers regard the activity as much more serious than do the student teachers. The index for the former group is 63 and for the latter, 37. The activity was recorded a third degree difficulty in 14 lessons by the practice teachers and in only 4 lessons by the critics. Perhaps the student teachers are in error by setting up too high a standard in the amount of pupil participation essential to a successful recitation. If this is true, student teachers should receive supervisory assistance so that they will not feel that they are failing seriously in this point.

Tables III and IV present data showing to what extent the *questioning* activities are presenting difficulty to practice teachers in the Minneapolis public schools. Table III gives the rank order of the difficulty of the activities as determined by the critic teachers and the corresponding rank order as determined by the practice teachers. Table IV presents the data from which Table III was derived.

TABLE IV

FREQUENCY WITH WHICH QUESTIONING ACTIVITIES WERE RECORDED WITH THE VARIOUS DEGREES OF DIFFICULTY BY PRACTICE AND CRITIC TEACHERS IN THE MINNEAPOLIS PUBLIC SCHOOLS

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	24	32	17	8	0	4	3	0	26	16	42
2	33	31	5	11	5	2	1	0	18	15	33
3	21	15	17	16	7	10	0	2	31	42	73
4	24	19	10	14	7	8	3	3	33	39	72
5	14	15	18	14	9	9	3	6	45	50	95
6	38	33	22	10	3	1	1	0	11	12	23
7	26	18	12	22	5	3	1	1	25	31	56
8	25	29	8	10	9	4	2	1	32	21	53
9	28	21	8	12	4	8	4	3	28	37	65
10	15	10	14	20	9	8	6	6	50	54	104
11	9	11	20	15	7	12	7	7	55	60	115
12	26	24	12	16	6	4	0	0	24	24	48



We note in Table III that the practice and critic teachers of the Minneapolis public schools agree, as did also the teachers in the University High School, that "stimulating interest through skillful questioning" is the most difficult activity of the questioning group. We note also in Table III that the practice and critic teachers agreed that "getting all pupils to participate" and "asking thought-provoking questions" ranked second and third respectively, in difficulty.

We found in Table I that "stimulating interest through skillful questioning" and "getting all pupils to participate" (activities 11 and 10) were causing the student teachers of the University High School a great deal more difficulty than was apparent to the critic teachers. This is not true of the teachers in the Minneapolis public schools. Activity 11 was found to be a third degree difficulty seven times by each group, and activity number 10 was recorded a third degree difficulty six times by each group. There is a slight variation in the number of first and second degree difficulties, but the index scores indicate a significant agreement. This shows that the practice and critic teachers in the public schools are in closer harmony regarding the difficulty of "stimulating interest through skillful questioning" and "getting all pupils to participate in the recitation" than are similar groups of teachers in the University High School.

Table V compares the difficulty of the *questioning* activities to practice teachers in the University High School and to practice teachers in the public schools as rated by the critic teachers. There is perfect agreement on the rank order of activities 11, 3, and 6 and significant agreement on all others except numbers 5, 4, and 8.

Activity number 5 was ranked 3 by the public school critics and 9 by the critics of the University High School. Activity number 4 was ranked 5 by the former and 11 by the latter. Activity number 8 was ranked 9 by the former and 2 by the latter. There is no objective evidence to explain these variations, although the writer is convinced as a result of personal observations that the variations are due to the differences in the policies of the two school systems.

"Asking open questions that invite confused chorus responses" is more troublesome to student teachers in the University High School than to student teachers in the public schools, quite likely

TABLE V

RANK ORDER OF DIFFICULTY OF QUESTIONING ACTIVITIES OF PRACTICE  
TEACHERS IN THE MINNEAPOLIS PUBLIC SCHOOLS AND IN THE UNIVERSITY  
HIGH SCHOOL

ACTIVITY NUMBER	ACTIVITY	M. P. S.*	U. H. S.**
11	Stimulating interest through skillful ques- tioning .....	1	1
10	Getting all pupils to participate .....	2	3
5	Asking thought-provoking questions .....	3	9
3	Making use of pupil reactions in phrasing new questions .....	4	4
4	Avoiding calling on bright pupils to the ex- clusion of the others .....	5	11
9	Getting pupils to volunteer and contribute ..	6	8
7	Stating questions so that they are clearly understood by the class .....	7	6
12	Accepting careless, fragmentary responses ..	8	5
8	Asking open questions that invite confused chorus responses .....	9	2
1	Asking definite questions .....	10	7
2	Phrasing questions so that they do not con- tain the answers .....	11	10
6	Avoiding too many "Yes" and "No" questions	12	12

\* Minneapolis public schools.

\*\* University High School.

because of the differences in pupil attitudes. The University High School pupils are given much more freedom in the classroom than are pupils of the public schools. This creates a quick, ready-response attitude in the University High School, and an unskilled teacher finds it difficult to formulate questions that will avoid situations involving uncontrolled confusion of responses.

"Asking thought provoking questions" (activity number 5) presents greater difficulty to practice teachers in the public schools than to those in the University High School, presumably for the same reason—difference in the attitude of the pupils. The public school pupils do not get so much freedom and this repression does not invite such a ready-response attitude. For this reason it takes greater skill on the part of practice teachers in formulating thought-provoking questions that will stimulate pupils to make contributions to the recitation.

"Calling on the bright pupil to the exclusion of the others" is a much more difficult problem for the practice teachers in the Minneapolis public schools than for the practice teachers in the University High School. This again is, presumably, due to the fact that student teachers find it frequently necessary to call on the brighter pupils in order to enliven the recitation and to "keep it moving." In the University High School it is more often necessary to devise methods to "restrain" rather than to "enliven" the recitation.

One of the purposes of the investigation was to attempt to determine whether the student teachers are conscious of their difficulties as determined by the critic teachers. The technique used to discover this was a comparison of the difficulty-rankings of the activities as determined by the critic and the student teachers. The coefficient of correlation was computed and because of the limitation in value of these figures, due to the small number of activities, an average rank-order displacement was also calculated.

Table VI illustrates the comparison of rankings by the rank-order-displacement method. We note that the sum of the differences in ranks is 16. By dividing this sum by the total number of rankings (12) we get 1.3. This indicates that for the average

TABLE VI  
RANK ORDER DISPLACEMENT OF STUDENT AND CRITIC TEACHER RANKINGS  
IN QUESTIONING

ACTIVITY	RANK C. T.	RANK P. T.	DIFFERENCE IN RANK
11	1	1	0
8	2	3	1
10	3	2	1
3	4	5	1
12	5	8	3
7	6	6	0
1	7	7	0
9	8	11	3
5	9	4	5
2	10	9	1
4	11	10	1
6	12	12	0
Total rank Difference .....			16
Average rank difference....			1.33

of the rankings on the 12 activities the student and critic teacher varied only 1.3 places per activity-rank.

By comparing the rankings of the student and critic teachers in Table I, we get a coefficient of correlation of .83 and a rank-difference-displacement of 1.33. These figures indicate that the student-teachers in the University High School are, in general,

TABLE VII

COMPARATIVE RANK ORDER OF DIFFICULTY OF ACTIVITIES IN DISCIPLINE BY THE CRITIC AND PRACTICE TEACHERS OF THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	ACTIVITY—GROUP II	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
3	Keeping pupils from talking when some one is reciting .....	1	1	1
4	Preventing undertone and whispering conversation during recitation .....	2	2	2
5	Keeping pupils from answering questions before some one is called on .....	3	3	3
2	Getting class quiet immediately after the gong at the beginning of a period ....	4	4	4
1	Having pupils in their seats when the tardy bell rings .....	5	6	5
6	Preventing unnecessary laughing during period .....	6	5	6
7	Keeping pupils quiet after the dismissal bell rings, until dismissed by the teacher .....	7	7	7

TABLE VIII

FREQUENCY WITH WHICH THE DISCIPLINE ACTIVITIES WERE RECORDED WITH THE VARIOUS DEGREES OF DIFFICULTY BY PRACTICE AND CRITIC TEACHERS IN THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	23	23	12	13	7	6	0	4	26	37	63
2	21	15	11	15	7	10	5	4	40	47	87
3	12	8	9	9	13	23	9	5	62	70	132
4	8	10	15	16	14	13	6	5	61	57	120
5	16	15	8	9	8	13	12	7	60	56	116
6	26	29	8	14	10	1	0	0	28	16	44
7	33	37	8	5	3	2	0	0	14	9	23

conscious of their difficulties, rating them in approximately the same order as do their critic teachers.

A similar comparison of the rankings in Table III indicates a similar conclusion for student teachers in the public schools. The coefficient of correlation is .88 and the average rank-difference-displacement is 1.16. These comparisons also indicate

TABLE IX

COMPARATIVE RANK ORDER OF DIFFICULTY OF ACTIVITIES IN DISCIPLINE BY CRITIC AND PRACTICE TEACHERS OF THE MINNEAPOLIS PUBLIC SCHOOLS

ACTIVITY NUMBER	ACTIVITY—GROUP II	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
4	Preventing undertone and whispering conversation during recitation .....	1	3	2
3	Keeping pupils from talking when some one is reciting .....	2	2	3
5	Keeping pupils from answering questions before some one is called on .....	3	1	1
1	Having pupils in their seats when the tardy bell rings .....	4	6½	6
2	Getting class quiet immediately after the gong, at the beginning of the period .....	5	5	4½
7	Keeping pupils quiet after dismissal bell rings, until dismissed by teacher .....	6	4	4½
6	Preventing unnecessary laughing during period .....	7	6½	7

TABLE X

FREQUENCY WITH WHICH DISCIPLINE ACTIVITIES WERE RECORDED WITH THE VARIOUS DEGREES OF DIFFICULTY BY PRACTICE AND CRITIC TEACHERS IN THE MINNEAPOLIS PUBLIC SCHOOLS

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	43	37	1	5	0	1	0	1	1	10	11
2	39	39	2	5	2	0	1	0	9	5	14
3	30	27	10	13	2	2	2	2	20	23	43
4	32	26	9	11	1	5	2	2	17	27	44
5	24	29	10	10	9	4	1	1	31	21	52
6	43	43	1	1	0	0	0	0	1	1	2
7	36	41	6	2	2	1	0	0	10	4	14

a slightly closer agreement of the student and critic teachers in the Minneapolis public schools than in the University High School.

Tables VII and VIII are tabulations of the data on *disciplinary* activities in the University High School. "Keeping pupils from talking when some one is reciting" is evidently the student teachers' greatest difficulty. "Preventing undertone and whispering conversations during the recitation" is next in importance.

The agreement of the student and critic teachers is closer on the disciplinary activities than on any other group of activities in this study. The coefficient of correlation of the rankings by the critic and student teachers in the University High School is .96 and the average rank-displacement is .28.

Tables IX and X give the data concerning the *disciplinary* activities in the Minneapolis public schools. There is a significant agreement on the rank order of difficulty of the activities although not so close as that between the University High School teacher-groups. The coefficient of correlation is .86 and the rank-order-displacement is 1.71.

Table XI compares the rank order of the difficulty-ranking in the Minneapolis public schools and in the University High School as rated by the critic teachers. The coefficient of correlation is .89 and the rank difference displacement .86.

TABLE XI

COMPARATIVE RANKING OF ACTIVITIES IN DISCIPLINE BY CRITIC TEACHERS OF MINNEAPOLIS PUBLIC SCHOOLS AND CRITICS OF THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	ACTIVITY	M. P. S. C. T.	U. H. S. C. T.
4	Preventing undertone and whispering conversation during recitation .....	1	2
3	Keeping pupils from talking when some one is reciting .....	2	1
5	Keeping pupils from answering questions before some one is called on .....	3	3
1	Having pupils in their seats when the tardy bell rings .....	4	5
2	Getting class quiet immediately after the gong at the beginning of period .....	5	4
7	Keeping pupils quiet after dismissal bell rings until dismissed by teacher .....	6	7
6	Preventing unnecessary laughing during period	7	6

These facts show that the disciplinary activities that are the most serious to the student teachers in the public schools are also the most serious to the student teachers of the University High School. However, this tells nothing about the comparative *degree of difficulty* to each group. In Table VIII we find the total index of difficulty score of activity number 3 for student and critic teachers in the University High School to be 132. Activity number 3 in Table X has an index score of 43 for similar teacher groups in the public schools. This signifies that even though "keeping pupils from talking when some one is reciting" is the most serious disciplinary problem to the student teachers of both systems, it is a great deal more serious to the practice teachers of the University High School. "Preventing whispering and undertone conversation during the recitation" has an index score of 120 in the University High School and only 44 in the public schools. "Keeping pupils from answering questions before some one is called on" has a score of 116 in the University High School and 52 in the public schools. Other comparative scores are: 87 and 12; 63 and 11; 44 and 2; 23 and 14. *In each case the index score for teachers in the University High School is considerably larger.* This shows that the disciplinary activities of classroom procedure are much more troublesome to student teachers of the University High School than to student teachers of the public schools.

Tables XII and XIII present data concerning the difficulty of the activities in *lesson planning* to student teachers in the University High School. Tables XIV and XV present similar data for student teachers in the Minneapolis public schools.

"Providing for individual differences" is evidently the most troublesome activity in lesson planning, as it is ranked first by three of the teacher-groups and second by the other group. Overestimating the amount a class can cover in a single recitation is much more frequent than underestimating the amount that can be covered in a single recitation.

One would suppose that "choosing good supplementary material" would be a serious problem to student teachers. This is not true, however, as it was a second or third degree difficulty in only 10 of the 88 lessons.

In comparing the difficulty-rankings of the lesson planning activities as rated by the critic and student teachers of the

TABLE XII

COMPARATIVE RANK ORDER OF DIFFICULTY OF ACTIVITIES IN LESSON PLANNING BY CRITIC AND PRACTICE TEACHERS OF THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	ACTIVITY—GROUP III	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
8	Providing for individual differences ...	1	1	1
7	Summarizing chief points of lesson....	2	4	2
6	Apportioning time to each activity of the recitation .....	3	3	3½
4	Overestimating the amount a class can cover in a single recitation .....	4	2	3½
1	Connecting new lesson with subject matter of previous recitation .....	5	6	6
2	Choosing good illustrative material ...	6	5	5
3	Selecting supplementary material ....	7	7	7
5	Underestimating the amount a class can cover in a single recitation .....	8	8	8

TABLE XIII

FREQUENCY WITH WHICH THE ACTIVITIES IN LESSON PLANNING WERE RECORDED WITH THE VARIOUS DEGREES OF DIFFICULTY BY CRITIC AND PRACTICE TEACHERS IN THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	34	29	8	9	0	3	3	2	17	21	38
2	26	30	12	8	4	6	2	0	26	20	46
3	33	30	8	12	3	1	0	1	14	17	31
4	17	26	10	9	8	7	8	3	50	32	82
5	41	38	2	5	1	1	0	0	4	7	11
6	16	20	17	11	9	9	3	3	44	38	82
7	20	16	14	15	7	6	3	7	37	48	85
8	12	13	14	19	10	6	8	6	58	49	107

University High School, we find a correlation coefficient of .88 and an average rank-order displacement of .75. A similar comparison of the ranking by the public school teachers gives a correlation coefficient of .69 and an average rank-displacement of 1.50.

We noted in the previous discussion of the disciplinary activities that those that were most difficult to the student teachers of



TABLE XIV  
COMPARATIVE RANK ORDER OF DIFFICULTY OF ACTIVITIES IN LESSON  
PLANNING BY CRITIC AND PRACTICE TEACHERS OF THE MINNEAPOLIS  
PUBLIC SCHOOLS

ACTIVITY NUMBER	ACTIVITY—GROUP III	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
7	Summarizing chief points of lesson ...	1	5	3
8	Providing for individual differences ...	2	1	1
6	Apportioning time to each activity of the recitation .....	3	2	2
4	Overestimating the amount a class can cover in a single recitation .....	4	3	4
3	Selecting supplementary material .....	5	6	6
2	Choosing good illustrative material ...	6	4	5
1	Connecting new lesson with subject matter of previous recitation .....	7	8	7
5	Underestimating the amount a class can cover in a single recitation .....	8	7	8

TABLE XV  
FREQUENCY WITH WHICH THE ACTIVITIES IN LESSON PLANNING WERE  
CHECKED WITH THE VARIOUS DEGREES OF DIFFICULTY BY CRITIC AND PRACTICE  
TEACHERS OF THE MINNEAPOLIS PUBLIC SCHOOLS

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	41	29	2	9	1	5	0	1	4	22	26
2	24	24	14	16	3	3	3	1	29	25	54
3	25	24	17	12	2	4	0	4	21	32	53
4	24	26	8	9	8	7	4	2	36	38	74
5	40	33	2	9	1	2	1	0	7	13	20
6	18	21	13	10	7	10	6	3	45	39	84
7	22	15	17	14	4	8	1	7	28	51	79
8	15	10	4	25	16	7	9	2	63	45	108

the University High School were also the most troublesome to student teachers of the public schools, but that the degree of seriousness to each system was of marked difference. This is not true of the activities in lesson planning. The highest ranking activity, number 8, has an index of difficulty for the public school teachers of 108 and for the University High School

teachers, 107. The average index of difficulty score of all lesson planning activities for the former teacher-groups is 62.2 and for the latter, 60.2. *This indicates that the lesson planning activities as a group are of the same degree of difficulty to student teachers in the Minneapolis public schools as to student teachers in the University High School.*

TABLE XVI  
RANKING OF MISCELLANEOUS ACTIVITIES BY PRACTICE AND CRITIC TEACHERS  
IN THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	ACTIVITY	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
15	Failing to apportion time during recitation economically .....	1	1	1
16	Failing to use blackboards advantageously .....	2	6	2½
10	Preventing wandering in class discussions .....	3	4	2½
5	Nervousness at beginning of period ..	4	8	5
8	Failing to make work applicable to life situations .....	5½	2	4
2	Failing to show interest and enthusiasm .....	5½	8	6½
1	Recalling subject matter already studied in class .....	7	12	10
9	Failing to make the assignment clear..	8	13½	12½
14	Correlating class work with general aim of the lesson .....	9	8	8½
6	Nervousness during the entire period..	10	16	14½
13	Neglecting the slow pupil .....	11½	3	6½
11	Referring too much to text or lesson plan .....	11½	10½	11
4	Speaking too slowly and hesitatingly..	13½	5	8½
7	Appearing ill at ease under supervision .....	13½	15	16
3	Speaking too fast .....	15	10½	12½
12	Spending too much time with the slow pupils .....	16	13½	14½

Tables XVI and XVII present data concerning the miscellaneous activities in the University High School. "Failing to apportion time during recitation economically" is agreed by both teacher-groups to be the most troublesome activity. There is some disagreement on the placement of the other activities.

Table XVIII shows that "failing to apportion time during the

TABLE XVII

FREQUENCY WITH WHICH THE MISCELLANEOUS ACTIVITIES WERE RECORDED WITH THE VARIOUS DEGREES OF DIFFICULTY BY PRACTICE AND CRITIC TEACHERS OF THE UNIVERSITY HIGH SCHOOL

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	30	29	13	13	1	1	0	1	15	18	33
2	31	33	8	3	3	7	2	1	20	20	40
3	28	36	13	7	3	1	0	0	19	9	28
4	28	37	10	4	3	3	3	0	25	10	35
5	30	28	10	10	2	5	2	1	20	23	43
6	41	32	3	11	0	0	0	1	3	14	17
7	40	36	4	7	0	0	0	1	4	10	14
8	23	28	13	12	6	4	2	0	31	20	51
9	35	31	7	10	2	2	0	1	11	17	28
10	22	24	13	19	4	4	2	0	27	27	54
11	31	35	7	6	6	3	0	0	19	12	31
12	35	40	7	2	1	0	1	1	12	5	17
13	24	35	14	7	4	1	2	1	28	12	40
14	27	30	15	13	1	1	1	0	20	15	35
15	22	23	14	11	5	7	3	3	33	34	67
16	30	25	7	11	4	5	3	3	24	30	54

recitation economically" is also the most difficult activity to student teachers in the public schools. There is a greater variation on the ranking of the remaining miscellaneous activities than on any other group. The correlation coefficient of the rankings by the University High School teachers is .58 and by the public school teachers is .66. The average rank-difference displacement by the former groups is 3.37 and by the latter, 2.75.

"Nervousness at the beginning of the period" is not so common as one might expect. In only 28 lessons was this apparent to the critic teachers. The activity is ranked 4 by University High School teachers and 12 by the public school group. It has an index of difficulty score of 43 for the former and 20 for the latter. This intimates that the student teachers feel just a little more "at home" in the public schools than in the University High School. Student teachers are seldom "nervous throughout the entire recitation period." "Referring too much to the textbook or to the lesson plan" is not a serious criticism of student teachers.

Table XX lists the activities in order of their difficulty accord-

TABLE XVIII

COMPARATIVE RANKING OF MISCELLANEOUS ACTIVITIES BY CRITIC AND PRACTICE TEACHERS IN THE MINNEAPOLIS PUBLIC SCHOOLS

ACTIVITY NUMBER	ACTIVITY	RANK C. T.	RANK P. T.	RANK C. T. AND P. T.
15	Failing to apportion time during recitation economically .....	1	1	1
14	Correlating class work with general aim of the lesson .....	2	5	4
8	Failing to make work applicable to life situations .....	3	2	2
2	Failing to show interest and enthusiasm .....	4	10	6½
13	Neglecting the slow pupil .....	5	3	3
1	Recalling subject matter already studied by class .....	6	4	5
9	Failing to make the assignment clear..	7	8	6½
4	Speaking too slowly and hesitatingly ..	8	12	9½
16	Failing to use blackboards advantageously .....	9½	11	9½
3	Speaking too fast .....	9½	9	8
7	Appearing ill at ease under supervision ..	11	15	13
5	Nervousness at beginning of the period ..	12	13½	14
11	Referring too much to text or lesson plans .....	13	13½	15
12	Spending too much time with slow pupils .....	14	6½	11
10	Preventing wandering in class discussions .....	15½	6½	12
6	Nervousness during the entire period..	15½	16	16

ing to the composite index scores, irrespective of the groups to which they belong. We note from this table that the most difficult activity is an activity in questioning. The ten highest activities contain: 3 questioning activities, 3 in discipline, and 4 in lesson planning. The miscellaneous activities are of less significance than any of the other groups as the highest ranking activity of this group ranks 12 on the total list. We note also that the lowest 15 activities on the total list contain 9 from the miscellaneous group.

Table XXI lists the activities in descending order of difficulty irrespective of group bounds, and gives the corresponding rank by the various teacher groups. The Roman numerals refer to the groups to which the individual activities represented by the

TABLE XIX

FREQUENCY WITH WHICH THE MISCELLANEOUS ACTIVITIES WERE RECORDED WITH THE VARIOUS DEGREES OF DIFFICULTY BY PRACTICE AND CRITIC TEACHERS OF THE MINNEAPOLIS PUBLIC SCHOOLS

ACTIVITY NUMBER	0 DEGREE		1ST DEGREE		2ND DEGREE		3RD DEGREE		INDEX OF DIFFICULTY		
	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T.	C. T.	P. T. AND C. T.
1	27	27	12	13	4	3	1	1	23	22	45
2	32	32	11	5	1	2	0	5	13	24	37
3	31	32	10	8	1	5	1	0	15	18	33
4	37	32	6	5	1	6	0	1	8	20	28
5	38	32	5	11	1	1	0	0	7	13	20
6	42	39	2	4	0	1	0	0	2	6	8
7	40	31	3	12	0	0	1	1	6	15	21
8	27	26	8	10	3	5	6	3	32	29	61
9	33	32	6	6	5	3	0	3	16	21	37
10	32	40	9	2	2	2	1	0	17	6	23
11	38	35	5	7	1	2	0	0	7	11	18
12	32	39	7	3	5	1	0	1	17	8	25
13	24	26	11	13	7	5	2	0	31	23	54
14	31	21	8	16	4	6	1	1	19	31	50
15	25	21	9	14	6	6	4	3	33	35	68
16	38	31	3	10	2	1	1	2	10	18	28

TABLE XX

COMPOSITE DIFFICULTY RANKING OF ALL ACTIVITIES

RANK	ACTIVITY	INDEX SCORES
1	Stimulating interest through skillful questioning .....	233
2	Providing for individual differences .....	215
3	Getting all pupils to participate .....	204
4	Keeping pupils from talking when some one is reciting ...	175
5	Keeping pupils from answering questions before some one is called on .....	168
6	Asking thought-provoking questions .....	167
7	Apportioning time to each activity of the recitation .....	166
8½	Preventing undertone and whispering conversation during the recitation .....	164
8½	Summarizing chief points of the lesson .....	164
10	Overestimating the amount a class can cover in a single recitation .....	156
11	Making use of the pupil reactions in phrasing new questions	150
12	Asking open questions that invite confused chorus responses	146

TABLE XX—*Continued*

RANK	ACTIVITY	INDEX SCORES
13	Failing to apportion time during recitation economically..	135
14	Stating questions so that they are clearly understood by the class .....	129
15½	Failing to make work applicable to life situations .....	112
15½	Accepting careless, fragmentary responses .....	112
17	Avoiding calling on the bright pupils to the exclusion of the others .....	110
18	Asking definite questions .....	107
19	Getting pupils to volunteer and contribute .....	106
20	Choosing good illustrative material .....	100
21	Having class quiet after the gong at the beginning of a period .....	99
22	Neglecting the slow pupil .....	94
23	Correlating classwork with general aim of lesson .....	85
24	Selecting supplementary material .....	84
25	Failing to use blackboard advantageously .....	82
26	Phrasing questions that do not contain the answers .....	80
27	Recalling subject matter already studied by class .....	78
28½	Failing to show interest and enthusiasm .....	77
28½	Preventing wandering in class discussion .....	77
30	Having pupils in their seats when the tardy bell rings....	74
31	Failing to make the assignment clear .....	65
32	Connecting new lesson with subject matter of previous recitation .....	64
33½	Speaking too slowly and hesitatingly .....	63
33½	Nervousness at the beginning of the period .....	63
35	Speaking too fast .....	61
36	Avoiding too many "Yes" and "No" questions .....	52
37	Referring too much to text or lesson plan .....	49
38	Preventing undertone and whispering conversation during recitation .....	46
39	Spending too much time with the slow pupil .....	42
40	Keeping pupils quiet after the dismissal bell rings until dismissed by teacher .....	37
41	Appearing ill at ease under supervision .....	35
42	Underestimating the amount a class can cover in a single recitation .....	31
43	Nervousness during the entire period .....	25

Arabic numbers belong. The four groups of activities are: I. Questioning, II. Discipline, III. Lesson Planning, and IV. Miscellaneous. The activities to which the Arabic numbers refer are given in Table XX.

TABLE XXI

CORRESPONDING RANK ORDER OF DIFFICULTY OF ACTIVITIES AS RATED BY THE VARIOUS TEACHER GROUPS

ACTIVITY*	COMPOSITE RANK	U.H.S. <sup>b</sup> TOTAL	M.P.S. <sup>c</sup> TOTAL	U.H.S. P.T. <sup>d</sup>	M.P.S. P.T.	U.H.S. C.T. <sup>e</sup>	M.P.S. C.T.
I-11	1	3	1	1	2	7	1
III-8	2	5	2	6	1	4	5
I-10	3	6	3	2½	3	10½	2
II-3	4	1	23	4	22	1	20½
II-5	5	4	18	5	11	3	25
I-5	6	14	4	9	4½	21½	4
III-6	7	10½	5	10½	4½	9	7½
II-4	8½	2	22	2½	26	2	16
III-7	8½	9	6	15	15½	5	3
III-4	10	10½	7	7½	6	14½	9
I-3	11	12	8	10½	11	13	6
I-8	12	7	16½	7½	8½	8	25
IV-15	13	15	10	16	7½	12	11
I-7	14	13	13	12	18	16½	13½
IV-8	15½	21	12	18	9½	25	15
I-12	15½	17	20	17	19	14½	18½
I-4	17	29½	9	26½	7½	33½	7½
I-1	18	16	24	13½	17	19	30
I-9	19	26	11	33½	15½	20	10
III-2	20	23	14½	23½	14	25	17
II-2	21	8	40	13½	36½	6	41
IV-13	22	27½	14½	20½	11	36½	20½
IV-14	23	31½	19	29	23	32	13½
III-3	24	34½	16½	37½	21	29	12
IV-16	25	19½	29	26½	32½	16½	28½
I-2	26	22	27½	19	24	29	31½
IV-1	27	33	21	36	20	27	22½
IV-2	28½	27½	25½	29	30	25	18½
IV-10	28½	19½	33½	22	26	23	39½
II-1	30	18	41	23½	42½	10½	37
IV-9	31	37½	25½	39½	28	29	26
III-1	32	29½	31	33½	40	23	22½
IV-4	33½	31½	29½	25	34	38½	27
IV-5	33½	25	36½	29	36½	21½	33½
IV-3	35	37½	27½	31½	29	40½	28½
I-6	36	36	33½	35	31	35	35
IV-11	37	34½	38	31½	36½	36½	36
II-6	38	24	43	20½	42½	31	43
IV-12	39	40½	32	39½	36	43	38

\* I. Questioning, II. Discipline, III. Lesson Planning, IV. Miscellaneous.

b. University High School

d. Practice teacher.

c. Minneapolis Public Schools.

e. Critic Teacher.

An attempt was made to discover what activities, as a group, were most difficult to student teachers. By averaging the composite ranks of the activities of each group, we find that questioning has an average rank of 14.9, discipline 20.9, lesson planning, 18.2, and the miscellaneous group, 29.7. In the same way the University High School and the Minneapolis public school rankings were averaged, the results of which are found in Table XXII.

Table XXII ranks the four groups of activities according to the average difficulty of the activities within each group. We find from the composite ranks that questioning presents the greatest difficulty to student teachers. Lesson planning is second in diffi-

TABLE XXII  
COMPARATIVE RANK ORDER OF DIFFICULTY OF VARIOUS GROUPS OF ACTIVITIES

NUMBER	GROUP	COMPOSITE RANK	U.H.S. RANK	M.P.S. RANK
I	Questioning .....	1	2	1
II	Discipline .....	3	1	4
III	Lesson Planning .....	2	3	2
IV	Miscellaneous .....	4	4	3

culty, discipline third, and the miscellaneous activities fourth. In the University High School the disciplinary activities rank first, questioning second, lesson planning third, and the miscellaneous activities fourth. In the Minneapolis public schools questioning is first, lesson planning second, miscellaneous activities third, and discipline fourth.

One of the questions set up at the outset of this investigation was, "Are student teachers conscious of their difficulties as determined by the critic teachers?" We find in Table XXIII that the correlation coefficient of the difficulty rankings rated by the critic and student teachers in the University High School is .81, and by similar teacher-groups in the public schools is .82. This shows significant agreement, so the question is answered in the affirmative.

Another purpose of this investigation was to attempt to answer the question, "Are the difficulties of student teachers in the University High School similar to the difficulties of student teachers in the public schools?" We find in Table XXIII that the coeffi-



TABLE XXIII

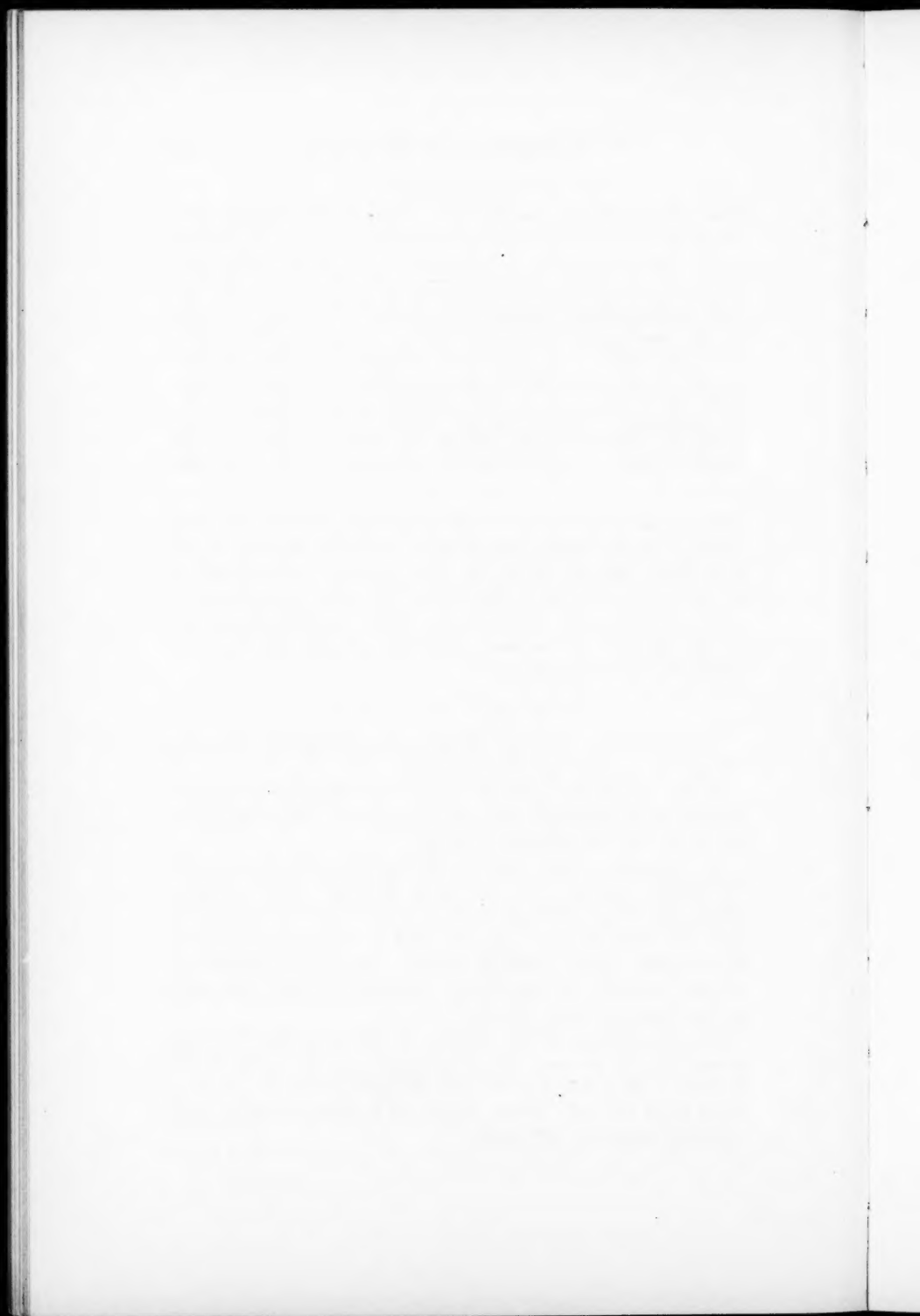
COMPARISONS OF RANKINGS OF ALL ACTIVITIES BY VARIOUS TEACHER GROUPS

GROUP I	GROUP II	COEFFICIENTS OF CORRELATION	P.E.
U. H. S. critic teachers	U. H. S. practice teachers	.81	.035
M. P. S. critic teachers	M. P. S. critic teachers	.82	.033
U. H. S. critic teachers	M. P. S. critic teachers	.47	.079
Composite rank	U. H. S. practice teachers	.89	.021
Composite rank	M. P. S. practice teachers	.83	.031
Composite rank	U. H. S. critic teachers	.83	.031
Composite rank	M. P. S. critic teachers	.77	.044
Composite rank	U. H. S. practice and critic	.88	.023
Composite rank	M. P. S. practice and critic	.85	.028

cient of correlation of the difficulty rankings, rated by the critic teachers of the public schools and the critic teachers of the University High School, is .47. This correlation shows that the activities rated as most difficult by the critic teachers in the public schools and in the University High School tend to be the same; although as has been previously pointed out, there are some important differences.

## SUMMARY OF CONCLUSIONS

1. A technique for determining general classroom difficulties of student teachers has been presented.
2. The classroom activities presenting difficulty to student teachers were given in descending rank order according to the degree of difficulty of each activity.
3. Comparisons were made of the rankings of the activities by the student teachers and the critic teachers. The correlation coefficient of the rankings by the student and critic teachers in the University High School is .81, and by similar groups in the Minneapolis public schools is .82. The conclusion is drawn that student teachers are significantly conscious of their difficulties as determined by critic teachers.
4. A comparison of the rankings of the activities by critic teachers in the Minneapolis public schools and by critics in the University High School shows that the difficulty of the activities tends to be the same in the two school systems, although there are some important differences.



**SECTION FOUR**  
**TECHNIQUES BASED ON ASPECTS OF**  
**THE RECITATION**



## CHAPTER IX

### TIME ACTIVITY ANALYSIS TECHNIQUE APPLIED TO THE SUPERVISION OF ARITHMETIC

H. J. STEEL

The time activity analysis is a form of the questionnaire. While most questionnaires receive scant attention from many busy school people, not only because of their number but because of the unreliability of the data secured, still a skillfully constructed questionnaire is a very useful instrument. The time activity analysis is so arranged that the teacher reports in terms of the time given to each of a list of activities during each day of the week. The investigator then knows that the activities did or did not occur in this room during the week, and if they did occur, what time emphasis was given each activity by the teacher.

This adaptation of the questionnaire was developed and applied by Dr. L. J. Brueckner to the study of primary reading.<sup>1</sup> He points out the limitations of the device in that it evaluates neither the methods used by the teacher nor the pupil activity.<sup>2</sup> It is claimed, however, that such a device will increase the efficiency of the supervisor and secure objective data that may be used as a basis for further study and improvement of the teacher's work. Dr. Brueckner also used this time activity analysis blank to study the classroom procedures in supervised study.<sup>3</sup> Dr. J. M. Hughes has also employed it to study the activities of the physics classroom.<sup>4</sup> The technique used in the study to be reported may be best explained by reproducing a copy of the analysis blank as it was filled out by a fourth-grade teacher.

The primary object of the inquiry reported in this paper was

<sup>1</sup> Brueckner, L. J., "The Value of the Time Analysis of a Classroom Activity as a Supervisory Technique." *Elementary School Journal*, 25: 518-521.

<sup>2</sup> *Ibid.*, p. 521.

<sup>3</sup> Brueckner, L. J., "A Survey of the Use of the Supervised Study Period." *The School Review*, 33: 333-345.

<sup>4</sup> Hughes, J. M., "Time Analysis of Activities in High School Physics." *The Journal of Educational Method*, 7: 75-80.





to study methods of drill on the four fundamental processes with whole numbers. For that reason the inquiries were made in the intermediate grades and for the same reason the blank lists many drill activities but none of the developmental teaching nor the work in decimals or fractions.

SUPPLEMENTARY QUESTIONS—ARITHMETIC REPORT GRADES 4B-6A  
MINNEAPOLIS PUBLIC SCHOOLS

Please answer the following questions by indicating the number of minutes during this week that were devoted to the activity in question:

- |  |    |     |
|--|----|-----|
| 1. How much of the drill on the fundamentals was                                   | R  | S   |
| a. Remedial drill based on individual needs .....                                  | 50 |     |
| b. Drill to make habitual a new process .....                                      | 60 | 150 |
| 2. How much of the drill on fundamentals was conducted                             |    |     |
| a. By the teacher .....  |    | 110 |
| b. By pupil teachers .....   |    |     |
| c. Undirected .....  |    |     |
| 3. How much of the time spent on problem solving was                               |    |     |
| a. Remedial work based on individual needs? .....                                  |    | 150 |
| b. Work on new types of problems? .....  |    |     |
| 4. Is this a typical week? .....   |    | Yes |
| 5. If not, what unusual types of activity have occurred that do not usually occur? |    |     |
| Pupils have done extra work when other work was completed.                         |    |     |
| 6. Do you require home work of your pupils? .....                                  |    | No  |
| 7. How much time per day do you usually require for home work?                     |    |     |

ANALYSIS OF ARITHMETIC WORK IN GRADES 4B-6A

In order to study more carefully the work of the teachers and pupils in arithmetic in the intermediate grades, a blank has been prepared upon which the teachers may analyze the activities of the arithmetic period and the time given to each. In some cases the blank may be very inadequate. In that case additional items may be placed on the back of the sheet.

Meanings of the items on the blank:

1. *R* refers to the recitation and includes review, questions on old and new materials, drill work, the assignment, and the development of new processes or problems.
2. *S* refers to study in school and includes the study of the pupils on material to be dealt with in a subsequent recitation. It may also consist of undirected study, conference, and the like.
3. "Development of new processes" refers to the teaching of a combination or process entirely new to the pupils.
4. "Drill" refers to the repetition given for the purpose of habituating a process or combination previously learned.



5. "Diagnosis" refers to the discovery through individual or group study of errors or faulty habits of work not readily discernible during the recitation.
6. "Problem solving." "The word 'problem' will designate only these exercises which require the pupil to determine first what operations are to be performed." P. 25, Monroe, De Voss and Kelley, *Educational Tests and Measurements*, Revised.

#### DIRECTIONS

1. The blank calls for the analysis of the activities of your arithmetic class for 1 week.
2. This should be your usual work with the usual time and the usual drills, problems, and assignments, not work of a special week.
3. If you are accustomed to making rearrangements of your program to provide for special room or building activities, or visits of supervisors, then report just the time used, not what should have been spent. This week should be typical of your usual work.  
Special class or building projects that may require arithmetic time should be avoided during this week.
4. Record as accurately as possible the time spent by the pupils on study.
5. If your class is divided into several ability groups, and each group engages in different kinds of drill, problems, etc., the following suggestion may help you to record their various activities on this report blank.
  - a. Report the activities and time devoted to each activity for the largest group only.
  - b. Disregard the activities of other groups except that you may indicate by checks (✓) in the proper places the kinds of work the other groups did.
  - c. If on any day, or part of a day, you teach the class as a whole, report the activities of the entire class.
6. Record each day's work each day as soon after the recitation as is possible.
7. At the end of the week return the blank to the Principal's office.
8. Your time analysis will be made much more valuable if you will send samples or describe the starred activities.

The definitions and directions on the blank serve to prevent some of the variations that usually occur in recording such data. A supervisor receiving this report might interpret it as follows: The teacher reported that in her fourth grade she drilled on the fundamentals in four different ways during this week. On each of four days she gave 15 minutes of drill at the blackboard. On each of four days she drilled 10 minutes with flash cards. On Tuesday she spent five minutes each with a game and with oral drill. In all she employed 110 minutes during the week in recita-

tion. Her assignments for study were uniform in length and consisted of isolated problems with numbers. She estimated that 30 minutes per day were spent by the pupils in solving these problems. On each of the first three days of the week 15 minutes were spent in diagnosis of difficulties in fundamentals. The study time for this class was 195 minutes during the week.

This gives the supervisor an idea of the activities of this class during the week. Among the good points shown are:

1. The emphasis on the fundamentals. This is proper in grade 4.
2. The use made of the blackboards.
3. The time given to the solution of the problems.
4. The attempt to find out the needs of individuals.

However, a supervisor might wish to know:

1. Whether the problems solved by the pupils were checked and discussed by the pupils.
2. Whether project problems are ever solved in this class.
3. If informal tests of achievement are used.
4. If timed drills on the fundamentals are used.

Such a report is, of course, somewhat similar to the records obtained by a trained observer. It is different in that the supervisor spends very little time in securing the report. This releases the supervisor for other duties, such as classroom visitation, conferences, and demonstration teaching. It increases the efficiency of the supervisor. In addition, the data obtained in this way are more likely to be reliable and acceptable to the teacher at the time of conference. Formerly the supervisor presented to the teacher a record of what she (the supervisor) saw at the time of the observation as a basis for the discussion and improvement of the teacher's work. Frequently the teacher challenged these records. The time activity analysis record is a report of what she (the teacher) did as reported by herself. The fundamental basis for the supervisor's conference is then firmly established. A word of caution might be added to the effect that if the supervisor wishes to continue such a plan of coöperative supervision, she must be exceedingly tactful and careful in discussing these reports. It is very easy for the teacher who has had one uncomfortable interview to avoid others by presenting an acceptable record rather than the one that shows the actual conditions in the room. Teachers who have filled out such reports have not found them burdensome or time-consuming. A further difference

between the proposed procedure and the classroom visitation technique is that no final judgment regarding the skill of the teacher can be based on the time activity analysis reports. Such evaluations must be based on subsequent classroom visitations.

These reports bring to the mind of the supervisor many questions for investigation. For example, one sixth grade teacher spent more than 70 minutes per week on drill with standard practice materials; another spent about 60 minutes per week in a similar drill. Courtis, whose standard practice material was probably the device used in this case, says that ten minutes a day is sufficient for the use of these materials.<sup>5</sup> These devices approximate the conditions of the practice experiment which implies a short period of intensive work. There may be a number of entirely legitimate reasons why the teacher used this device for 60 or 70 minutes per week, but the point is of sufficient value to warrant an investigation by the supervisor.

Another teacher reported assigning problems that required 25 minutes per day or 150 minutes per week for solution. However, she did not report any time spent in correcting or explaining difficult problems. She may have made these explanations but did not record them. Again it is wise for the supervisor to investigate. One sixth grade teacher reported 40 minutes spent in developing fundamental processes with whole numbers. Usually these have all been taught in grade 4, and certainly have all been taught in grade 5. Then why was the time spent in this way in grade 6? Conditions that would justify this use of time are certainly extraordinary and should be known to the supervisor.

Another fifth grade teacher reported no time given to fractions, decimals, or problem solving. This report was made late in the school year. Surely problem solving, fractions, and decimals are important enough in grade 5 to have been included at least once a week. Again, other teachers who did spend time in solving problems used the isolated variety entirely. These teachers may need help in devising and teaching project problems and those related to art, geography, reading, or history.

A number of similar illustrations might be given, but it is clear that this device brings to the supervisor, with a minimum of

<sup>5</sup> Courtis, S. A., *Teacher's Manual for Standard Practice Tests in Arithmetic*, p. 17.

effort, reports that indicate where investigations should be made, where the time and effort of the supervisor should be expended.

In addition to the value of these reports in pointing out individual classrooms that may require the attention of the supervisor, summaries of these reports reveal general conditions and indicate the necessity for changes in policy through the city.

Table I summarizes the distributions of time given to these various activities by 97 Minneapolis teachers in grades 4 to 6. One hundred thirty-nine teachers were asked to make these

TABLE I  
THE AVERAGE TIME PER WEEK DEVOTED TO VARIOUS ACTIVITIES IN ARITHMETIC AS REPORTED BY MINNEAPOLIS TEACHERS

TYPE OF ACTIVITY	Grade 4		Grade 5		Grade 6	
	R	S	R	S	R	S
I A .....	12.2	19.3	8.3	11.3	3.6	3.4
B (1) ...	22.7	10.6	17.1	3.5	13.6	0.5
(2) ...	1.7	0.8	3.4	1.3	3.3	0.0
(3) ...	3.1	0.2	0.4	0.0	3.3	0.0
(4) ...	4.8	0.0	4.7	0.4	4.2	0.3
(5) ...	23.5	6.7	13.8	7.3	16.9	4.5
(6) ...	8.1	11.9	8.1	2.5	8.1	0.9
(7) ...	6.1	12.2	6.4	15.0	2.6	0.9
C (1) ...	8.7	1.6	5.4	0.3	3.6	0.2
(2) ...	3.7	16.7	4.2	10.2	4.8	0.3
D .....	14.7	3.1	7.2	2.2	7.5	0.9
II .....	0.9	0.0	11.4	1.6	12.8	6.5
III .....	0.0	0.0	16.4	10.2	35.3	18.9
IV A (1) ...	10.4	8.0	14.4	17.6	23.2	21.2
(2) ...	4.3	0.8	6.9	0.6	4.7	1.9
B .....	1.4	0.3	1.6	0.9	4.7	4.5
C .....	2.3	0.8	1.1	0.0	1.1	3.1
D .....	3.1	1.1	7.3	1.0	6.6	1.9
E (1) ...	0.0	0.0	0.3	0.1	0.8	0.2
(2) ...	1.1	1.4	0.6	3.6	5.8	5.2
V A .....	2.1	1.4	3.1	4.1	3.6	0.3
B .....	3.1	0.4	3.5	1.9	4.6	1.2
C .....	2.6	2.7	3.4	1.3	3.6	1.5
Total .....	140.6	100.0	149.0	96.9	178.3	78.3
Classes .....	31		34		32	

TABLE II

AVERAGE TIME PER WEEK DEVOTED TO VARIOUS ACTIVITIES IN ARITHMETIC AS REPORTED BY 12 MINNESOTA CITIES INCLUDING DULUTH

TYPES OF ACTIVITIES	Grade 4		Grade 5		Grade 6	
	R	S	R	S	R	S
I A .....	13.0	24.3	4.3	1.3	10.1	1.9
B (1) ...	40.5	3.1	13.9	4.3	14.1	2.2
(2) ...	7.3	0.3	2.1	0.0	1.4	0.0
(3) ...	6.2	0.8	1.3	1.5	0.9	0.3
(4) ...	17.8	0.0	10.8	1.0	12.7	0.3
(5) ...	5.5	13.2	11.0	3.4	9.4	5.1
(6) ...	7.9	21.1	6.2	1.0	5.0	2.7
(7) ...	3.6	13.9	1.9	3.2	4.1	0.1
C (1) ...	2.2	3.5	4.5	5.8	2.9	1.9
(2) ...	3.3	0.6	1.3	0.7	0.7	0.5
D .....	14.2	9.8	4.8	0.7	4.5	4.0
II .....	0.3	4.7	25.0	19.8	8.7	4.4
III .....	1.1	0.0	26.3	29.3	23.2	11.2
IV A (1) ...	11.7	33.3	14.1	39.8	35.0	62.5
(2) ...	1.2	2.3	0.8	0.3	2.5	0.5
B .....	1.3	0.8	1.9	0.9	2.3	4.7
C .....	0.0	0.3	1.3	1.2	0.0	2.5
D .....	3.2	1.1	10.8	3.3	11.8	16.9
E (1) ...	0.0	0.2	0.0	0.0	0.0	0.7
(2) ...	2.8	0.0	2.6	4.1	2.6	6.9
V A .....	2.9	0.2	2.7	0.3	6.8	0.5
B .....	0.2	0.0	0.2	0.0	0.1	0.3
C .....	0.5	0.3	0.9	3.1	0.5	0.4
Total .....	146.4	131.9	148.7	125.0	159.3	130.3
No. of teachers	32		29		36	

## CODE FOR TABLES I AND II

- I A Development of fundamental processes with integers.  
 B (1) Drill—Pupils at the blackboard.  
 (2) Drill—By flash cards.  
 (3) Drill—By games.  
 (4) Oral drill.  
 (5) Drill by standard practice material.  
 (6) Timed drills.  
 (7) Other drills.  
 C (1) Standard achievement tests.  
 (2) Informal achievement tests.  
 D Diagnosis of individual differences.

- II Development of fundamental processes with fractions and decimals.
- III Drill on fundamental processes with fractions and decimals.
- IV A (1) Solving isolated problems with numbers.  
(2) Solving isolated problems without numbers.  
B Solving related problems.  
C Solving project problems.  
D Diagnosis of difficulties in problem solving.  
E (1) Standard achievement tests of problem solving.  
(2) Informal achievement tests of problem solving.
- V A Estimating results and amounts.  
B Graphing the results of informal or standard achievement tests.  
C Assigning pupils to pupil teachers for help.

reports, but not all did so.\* The various activities are designated by an outline number and the code for this outline is given. The letter *R* refers to recitation time and *S* to study time. In grade 4, 31 teachers spent an average of 12.2 minutes in recitation per week in developing fundamental processes with integers (IA), and also 19.3 minutes of study time to the same activity. The recitation time, 8.3 minutes, given to this activity in grade 5 is less and still less, 3.6 minutes, in grade 6. In grade 4 the teachers use standard practice materials (IB(5)) very freely, 23.5 minutes per week, during the recitation. However, the taxpayer or school board member, who questions the educational value of the expensive slate blackboards in our schoolrooms, should be interested to note that these fourth grade teachers spent 22.7 minutes per week in drilling their children at the blackboards (IB(I)). This is over one-seventh of the total time of the recitation during the week, 140.6 minutes.

Other conditions revealed by this table are:

1. The emphasis upon the fundamentals in grade 4.
2. The shift of emphasis to fractions and decimals in grades 5 and 6.
3. The increasing time emphasis upon problem solving as the children progress through the grades. Practically all of this time is spent on isolated problems and almost no time on problems related to other subjects and upon project problems. It is very probable that teachers need help in collecting and preparing these types of problems.

\* The method of selecting these teachers as well as other details in this investigation may be secured by consulting *The Time Distribution in the Arithmetic Drill Period*, a Master's thesis by the author, on file in the University of Minnesota library.

4. The continued time emphasis upon the fundamental processes with integers in grades 5 and 6. In grade 5, 47% and in grade 6, 38% of the recitation time is devoted to the fundamental processes with whole numbers. Possibly the teachers were preparing for the Courtis Supervisory Tests with whole numbers and were neglecting fractions and decimals. The application of a test containing fractions and decimals would be necessary to prove this point.

In addition to the reports secured from Minneapolis teachers, 97 teachers in other Minnesota cities and villages made reports. One hundred seventy blanks were sent to 14 school systems and 97, or 57%, replies were received from 12 school systems that varied in size from one village with an elementary school enrollment of 164 pupils to one city that enrolled 16,756 pupils in its elementary schools.

In Table II the average time per week is given for grades 4, 5 and 6 and for all activities. The following interesting tendencies appear in the table:

1. Minnesota teachers drilled their pupils at the blackboard and orally more than any other way.

2. Minnesota teachers used very few informal tests of achievement.

3. Minnesota teachers made generous use of standard practice materials and timed drills.

4. Minnesota teachers used very few project problems but gave much attention to isolated problems with numbers.

5. Minnesota teachers rarely graphed the results of the tests and made little use of pupil teachers.

6. In grade 4 the usual activities of the pupils during the study period consisted of solving isolated problems, timed drills, and examples which aid in the development of new processes.

7. In grade 5 the usual activities of the pupils during the study period consisted of working examples involving fractions and decimals and solving isolated problems.

8. In grade 6 the commonest activity of the pupils during the study period was problem solving.

The large proportion of study time given to problem solving in grade 6 and even in grade 5 indicates that these teachers did not guide and direct the problem-solving as much as they did the drill work. When the original reports were reexamined, eight

instances were found of teachers who made assignments of problems and spent no time in explaining or checking up these problems. Three Minneapolis teachers followed the same procedure. It is possible that errors have been made in reporting or in interpreting these classroom activities, but the evidence seems to be clear and points to the need of personal investigation and possibly a change of procedure.

Interesting as these activity analysis reports are, they reveal only the activities of a week chosen during the spring months. It would be still more valuable to make analyses at other times of the year. Investigations of time allotments have always been profitable. This technique extends the study of time allotments into the details of procedure within the subject. The time activity analysis technique is not a substitute for classroom visitation and conference, just as the talking movies will never supplant the classroom teacher. We value highly the personal daily guidance of the teacher for the pupil. The guidance of the teacher by the supervisor is just as vital. The time activity analysis technique will supplement the usual supervisory activities and make them more effective.



## CHAPTER X

### ANALYSIS OF THE USE MADE OF THE RECITATION PERIOD

J. ORIN POWERS

The analysis presented in this chapter is offered as an illustration of an objective technique for securing and systematizing information in regard to the disposition and use made of the class time of a large number of recitation or class periods. The device can be used without entailing an undue amount of labor on the part of teachers. Advantages accruing to the technique and apparent in its use are: its effectiveness and ease of administration, the large amount of information made available, reasonable assurance of reliability, multiple uses of the findings, and flexibility in adaptation to varying school conditions.

The data used in this illustration were gathered in an investigation of the use made of the sixty-minute class period in certain high schools of Minneapolis. One of the purposes for which the sixty-minute period had been introduced was to provide for supervised study, although no specific directions had been given to the teachers as to how many minutes of the class period should be used for supervised study or what should be the placement of supervised study in the class period with reference to the other major phases of the recitation. In other words the teachers had been directed to use the period to the best advantage, themselves being the judges of their own effectiveness. It was expected that there would be variation with teachers, by subjects of study, and from day to day. Although the original purpose was to investigate the actual use of the class period as regards supervised study, it was decided to extend the inquiry to the other major phases of the recitation period, namely, the assignment, the recitation proper, written tests, and other activities.

Central tendencies and typical practices reported in this chapter are not to be interpreted as norms, standards, or recommended practices. The data presented suggest many problems of

what desirable practices should be. It is deemed important that supervisors should know what teachers actually are doing. In order to know this, supervisors usually resort to classroom visits or oral reports. Both of these methods, being individual, require a great amount of time and are often unsystematic and impressionistic. The method here presented enables the supervisor to secure quickly a composite of the practices in regard to the major activities of the class period.

Information as to the order of classroom activities, their nature or character, and the time devoted to each was secured from coöperating teachers by means of a check list. This check list (Form A) was devised to be as simple as possible and to require a minimum amount of clerical work in reporting. The items of information are such as are known to the teacher or can readily be ascertained. Few explanations are needed. One form is required for reporting the activities of the five class periods of a class section for one week. The explanations necessary were reduced to a single mimeographed page (Form B). Preliminary trials of Form A indicated that no difficulty was experienced by teachers in reporting the facts designated. The forms were distributed to teachers by building principals and returned by the principals to the Research Bureau.

The schools coöperating in this study were two junior high schools of the three-grade type, two junior-senior high schools of the six-grade type, and one four-year high school. All of the reports were of ninth grade classes. The returns were from 166 class sections or 830 recitation periods.

Table I shows the number of reports returned by type of school reporting.

TABLE I  
NUMBER OF REPORTS BY TYPE OF SCHOOL REPORTING

TYPE OF SCHOOL	CLASSES	RECITATION PERIODS
Junior High School A .....	31	155
Junior High School B .....	56	280
Junior-Senior High School A .....	27	135
Junior-Senior High School B .....	20	100
Four-year High School .....	32	160
Total .....	166	830

Table II shows the distribution of the 830 recitation periods by subjects of study.

TABLE II  
NUMBER OF REPORTS BY SUBJECTS OF STUDY

SUBJECTS OF STUDY	CLASSES	RECITATION PERIODS
English .....	58	290
Social Studies .....	42	210
Mathematics .....	40	200
Elementary Science .....	9	45
Latin .....	7	35
Commercial .....	8	40
Penmanship .....	2	10
Total .....	166	830

There appears to be no complete agreement in the practice of separating supervised study from the recitation phase of the class period, although a tendency appears in that direction. Sixty-seven, or 40.4 per cent, of the reports indicated that the teacher did separate supervised study from the recitation; 47, or 28.3 per cent, indicated that separation was not made; and 52, or 31.3 per cent, indicated that separation was made sometimes. Apparently, as would be expected, the type of school is no factor, since the teachers relied entirely upon their own judgments. A large proportion of the teachers appear to be inconsistent in their own practices.

TABLE III  
DISTRIBUTION OF ANSWERS TO THE QUESTION: "DO YOU DISTINCTLY SEPARATE SUPERVISED STUDY FROM THE RECITATION?"

TYPE OF SCHOOL	YES	NO	SOMETIMES
Junior High School A .....	16	4	11
Junior High School B .....	22	17	17
Junior-Senior High School A .....	5	14	8
Junior-Senior High School B .....	14	4	2
Four-Year High School .....	10	8	14
Total .....	67	47	52

Much greater consistency appears in regard to the requirement of preparation by the pupil outside of class time. One hundred twenty-six, or 75.9 per cent, of the reports indicated that the

FORM A  
ANALYSIS OF CLASSROOM ACTIVITIES, INCLUDING SUPERVISED STUDY

TEACHER .....		SCHOOL .....		SUBJECT .....								
ABILITY GROUP .....		PERIOD .....		NUMBER ENROLLED .....								
		Monday		Tuesday		Wednesday		Thursday		Friday		
	Order	Nature*	Time	Order	Nature	Time	Order	Nature	Time	Order	Nature	Time
Assignment .....												
Recitation .....												
Supervised Study ...												
Laboratory .....												
Written Test or Examination .....												
Remarks (See next page)												

## FORM A—Continued

ASSIGNMENT MAY BE	RECITATION MAY BE	SUPERVISED STUDY MAY BE	TEST OR EXAMINATION MAY BE
1. Topical.	1. Topical.	1. Individual help or guidance.	1. Review.
2. A problem to be solved.	2. Question and answer.	2. Drill.	2. Check on prepared work.
3. Pages or paragraphs.	3. Socialized.	3. Suggestions of devices, methods or references.	3. Diagnostic.
4. Outline to be filled.	4. Individual reports.	4. Explanation of difficult points, answering questions.	4. Other.
5. Individual reports.	5. Projects.	5. Inspection of students' work.	
6. Continuation of previous assignment.	6. Oral test.	6. Checking students' work.	
7. Review.	7. Development.	7. Guiding generalizations.	
8. A series of questions or problems (Math.).	8. Demonstration.	8. Undirected free study.	
9. Other .....	9. Drill.	9. Group study.	
	10. Reporting assigned work.	10. Library study.	
	11. Review.	11. Other .....	
	12. Other .....		

Do you distinctly separate supervised study from recitation? .....

Do you require preparations outside of class time? .....

\* Indicate by number as in key above.

## FORM B

AN ANALYSIS OF THE USE MADE OF THE 60-MINUTE PERIODS

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In order to discover the actual use made by teachers of the class periods for the different subjects in junior high school grades, a blank has been prepared upon which the teachers can record quickly the order in which general types of activity occur during a lesson, the nature of the activity, and the amount of time given to each. For some kinds of lessons the blank may be inadequate. In that case the character of the lessons can be briefly indicated on the back of the sheet.

## MEANING OF THE ITEMS ON THE BLANK

1. Assignment: This refers to the part of a lesson in which the teacher develops and assigns new work to the pupils to be prepared after the assignment has been made. It deals in general with the assignment of material which is new, and upon which the pupil has not made previous preparation. It is to be the definite basis for a subsequent lesson or series of lessons.

2. Recitation: This covers the review work, questions on old or new material by the pupils, returning and collecting written work, class discussion and other class activities dealing with the development of previously assigned and prepared materials.

3. Supervised Study: This refers to the part of the class period definitely given over to the study of the materials to be dealt with in a subsequent lesson. It may be directed or undirected study, conferences and the like, that occur during the regular class period.

4. Laboratory: Individual experiments in physics or chemistry, individual work in bookkeeping, typewriting, and similar activities should be included here.

5. If a test or examination is given as the whole or the part of the work of a class period, this should be indicated after test or examination.

6. Two extra blank spaces are provided for the listing of any additional activities.

## DIRECTIONS

1. The data called for may be made out for any two classes which a teacher meets. The blank calls for the facts for one week.

2. In the column headed "Order," indicate by (1) the activity that occurred first; indicate by (2) the one that occurred second, and so on.

3. In the column headed "Nature," indicate by number corresponding with its number in the key, the nature of the activity. If two or more activities occur, indicate the number of minutes devoted to each.

4. In the column headed "Time," indicate as closely as you can the amount of time given to each activity.

5. At the end of the week, return the blank to the principal's office.

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## FORM C

### SUGGESTED OUTLINE FOR OBSERVATION AND REPORT OF A RECITATION

Date..... Time..... School..... Observer.....  
 Teacher..... Grade..... Subject..... Length of period  
 .....minutes. Ability section .....  
 Topic or Content .....  
 Type of lesson procedure .....

### DISPOSITION OF THE PERIOD

Type of Activity	Order	Nature	Time	No. of Pupils Receiving In- dividual Attention
Assignment	.....	.....	.....	.....
Recitation	.....	.....	.....	.....
Supervised Study	.....	.....	.....	.....
Test	.....	.....	.....	.....
Other (name it)	.....	.....	.....	.....
1. Were the physical conditions unsatisfactory?..... How?.....				
2. Was the routine effective?..... How?.....				
3. Did the problem arise specifically from the experience of the pupils?... How? .....				
4. Was there evidence of outside preparation by the pupils? .....				
What? .....				
5. Was supervised study separated from recitation? .....				
6. Was the nature of procedure such as to:				
a. Afford attention to individual differences among pupils? .....				
How? .....				
b. Foster self-activity and personal initiative on the part of the pupils? How? .....				
c. Teach the pupil how to study the subject?..... How?.....				
d. Provide for socializing opportunities? .....				
7. Was differentiation made according to the ability grouping of the pupils?..... What?.....				
8. Was a practical application made of the unit studied?.....				
What? .....				
9. Number of minutes devoted to drill..... Review.....				
Development..... Number of minutes wasted by the teacher.....				
10. Was the criticism stimulative and helpful?..... trivial and fault-finding?..... How?.....				
11. Evidences of departure from formal lesson-hearing:				
(1) .....				
(2) .....				
(3) .....				

TABLE IV

DISTRIBUTION OF ANSWERS TO THE QUESTION: "Do You Require Preparations Outside of Class Time?"

TYPE OF SCHOOL	YES	NO	SOMETIMES
Junior High School A .....	22	3	6
Junior High School B .....	44	0	12
Junior-Senior High School A .....	19	0	8
Junior-Senior High School B .....	15	0	5
Four-year High School .....	26	0	6
Total .....	126	3	37

teacher did require preparation outside of class time; only three of the reports indicated that such preparation was not required. It is evident, therefore, that in the opinion of the teachers the sixty-minute period is no complete substitute for outside preparation.

Considering assignment, recitation, and supervised study the major phases of the recitation period, it is interesting to note that each of these phases is not infrequently omitted entirely from the recitation period. Supervised study is most frequently omitted, and with approximate equal consistency, with each sub-

TABLE V

NUMBER OF OMISSIONS OF THE MAJOR PHASES OF THE RECITATION PERIOD

SUBJECT	NUMBER OF RECITATION PERIODS	MAJOR PHASE OF THE RECITATION PERIOD OMITTED		
		Assignment	Recitation	Supervised Study
English .....	290	49	41	86
Social Studies .....	210	31	36	52
Mathematics .....	200	30	17	39
Elementary Science ..	45	9	9	11
Latin .....	35	—	4	3
Commercial .....	40	16	11	15
Penmanship .....	—	—	—	—
Total .....	830	135	118	206

ject of study. The frequency with which supervised study is omitted is not fully compensated for by omissions of the recitation phase of the period. Assignments are omitted with sufficient



frequency to indicate that the teachers do not consider the daily assignment an essential to good teaching. In this connection it should be noted that some other activities, principally written tests, were reported which appear to be substitutes in part for recitation and supervised study.

The order or succession in which the major phases of the recitation period occur has important bearings upon method and the type of mental activity demanded of the pupil. In this investigation 487 recitation periods included assignment, recitation proper, and supervised study, and no other activity. Analysis of the order of the three major phases shows that the typical recitation period was either recitation, followed by assignment, followed by supervised study; or, assignment, followed by recitation, followed by supervised study, with some slight tendency in favor of the former. Supervised study is typically third or last in order of activities. There appears to be but little tendency to variation with subjects of study.

Of the various questions which arise from this simple consideration of the arrangement of activities within a recitation period, two only will be pointed out. These are considerations of continuity of subject matter and separation of pupil preparation from recitation of the prepared material by a period of twenty-four or seventy-two hours. There are six possible arrangements of these three activities. If we assume that the normal and continuous order of lesson procedure be an assignment, followed by study of the assignment, followed by recitation of it, then three

TABLE VI  
ORDER OF THE MAJOR PHASES OF THE RECITATION PERIOD

SUBJECT OF STUDY	NUMBER OF RECITATION PERIODS	ASSIGNMENT			RECITATION			SUPERVISED STUDY		
		1	2	3	1	2	3	1	2	3
English .....	159	87	56	16	64	76	19	10	19	130
Social Studies.	129	38	79	12	69	45	15	15	13	101
Mathematics ..	133	48	69	16	80	51	2	5	11	117
Elementary										
Science .....	19	10	6	3	9	10	—	—	3	16
Latin .....	29	15	12	2	14	15	—	—	2	27
Commercial ..	18	3	14	1	15	3	—	—	1	17
Total .....	487	201	236	50	251	200	36	30	49	408

TABLE VII  
POSSIBLE ORDERS OF MAJOR PHASES OF THE RECITATION PERIOD

SUBJECT MATTER		PREPARATION AND RECITATION	
CONTINUOUS	DISCONTINUOUS	SEPARATED	NOT SEPARATED
<u>R A S</u>	R S A	<u>R A S</u>	S R A
<u>A S R</u>	S A R	<u>A R S</u>	S A R
S R A	<u>A R S</u>	R S A	A S R

A = Assignment

R = Recitation

S = Supervised study

of the possible orders provide for continuity of subject matter and three do not. Similarly three of the possible orders provide for study and recitation of the unit of subject matter on the same day, while three provide for separation of study from recitation by twenty-four hours from Monday to Friday inclusive, and by seventy-two hours between Friday and Monday. Table VII shows a diagrammatic representation of these possibilities, with letters as abbreviations for the three major phases considered. The orders of arrangement most frequently used by the teachers are underlined. It appears that one of the orders most frequently used violates continuity of subject matter; the other does not. Both of the orders frequently used separate study of the lesson unit from recitation of it by twenty-four or seventy-two hours. The two orders, A S R and S R A, which do not violate continuity of subject matter or separate study of the lesson unit from the recitation of it, are not in favor with the teachers. Both of the orders favored by the teachers are adaptable to the requirement of outside preparation by the pupils. This adaptability is due to the placement of supervised study at the latter end of the period, allowing for a lapse of twenty-four or seventy-two hours between the supervised study and subsequent recitation.

The time devoted to each major phase of the recitation period varies widely. With the exception of the recitation itself, the extreme variation is as wide as possible within the limits of the period. Central tendencies appear in the distributions of class time devoted to assignment, recitation, and supervised study, the tendency being least marked in the distribution of time devoted to recitations. (See Tables VIII, IX, and X.) Considering the large proportion of the class periods in which each major

TABLE VIII  
TIME DEVOTED TO ASSIGNMENTS

MINUTES	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL
0- 4 .....	12	17	20	3	5	3	—	60
5- 9 .....	80	41	70	9	22	10	7	234
10-14 .....	77	68	50	15	6	8	4	228
15-19 .....	30	31	14	2	2	2	4	85
20-24 .....	27	13	9	6	—	1	—	56
25-29 .....	5	2	5	—	—	—	—	12
30-34 .....	3	5	1	1	—	—	—	10
35-39 .....	2	2	—	—	—	—	—	4
40-44 .....	1	—	1	—	—	—	—	2
45-49 .....	—	—	—	—	—	—	—	—
50-54 .....	1	—	—	—	—	—	—	1
55-60 .....	3	—	—	—	—	—	—	3
Total .....	241	179	170	36	35	24	10	695
Median .....	11.9	12.3	9.6	13.0	7.8	9.5	13.8	11.2

phase of the recitation period is omitted entirely (Table V), it appears that the teachers exercise a wide range of judgment of the amount of time deemed expedient for each type of activity.

An objective commonly claimed for the lengthened period with supervised study is that it will tend to increase the amount of time given to the assignment. The distribution of class time devoted to assignments indicate that, in general, this objective is attained. Some variation appears with the subjects of study. Assignments tend to be longer in minutes in elementary science and the social studies and shorter in Latin and mathematics. In relation to the time allowance for supervised study and recitation, the time devoted to assignments appears to be ample. Furthermore, the position of the assignment in the preferred orders of activities, R A S and A R S, is such as would encourage giving to it all of the time necessary. It should be noted that some of the assignments consume a large portion of the class period. A relatively small portion of them are less than five minutes in length.

Excepting penmanship, mathematics appears to require the

TABLE IX  
TIME DEVOTED TO RECITATIONS

MINUTES	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL
0-4 .....	—	—	—	—	—	—	—	—
5-9 .....	3	1	5	—	—	—	4	13
10-14 .....	25	9	21	3	1	2	6	67
15-19 .....	11	17	23	5	3	3	—	62
20-24 .....	39	31	50	3	2	4	—	129
25-29 .....	41	25	27	9	6	5	—	113
30-34 .....	44	57	38	9	10	2	—	160
35-39 .....	18	19	5	3	5	9	—	59
40-44 .....	22	7	7	2	3	1	—	42
45-49 .....	16	—	4	—	—	1	—	21
50-54 .....	13	2	1	2	1	1	—	20
55-60 .....	17	6	2	—	—	1	—	26
Total .....	249	174	183	36	31	29	10	712
Median .....	30.7	30.4	24.3	28.9	31.8	31.3	19.8	28.8

least amount of time in recitation. The median amounts of time devoted to recitations is approximately equal in Latin, English, and the social studies. The use of all or nearly all of the class period for recitation is most frequent in English. Generally speaking, teachers do not use the full sixty-minute period for recitation. A large proportion of the recitations are short.

Supervised study is deemed less important than the recitation as judged by the amount of time devoted to it. There appears to be only a slight variation by subjects of study. As with the recitation a considerable proportion of the supervised study periods are short. All or nearly all of the class period is less frequently used for supervised study than for the recitation. The typical position of supervised study at the end of the period suggests that it receives the class time left over after assignment and recitation have been disposed of. The typical time devoted to supervised study appears to be insufficient in relation to the other major phases of the recitation period.

Consideration of the amount of time devoted to the major phases of the class period gives some light as to the length of

TABLE X  
TIME DEVOTED TO SUPERVISED STUDY

MINUTES	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL
0-4 .....	—	—	—	2	—	—	2	4
5-9 .....	3	8	1	—	—	3	2	17
10-14 .....	25	24	24	3	—	1	—	77
15-19 .....	64	39	45	5	14	8	4	179
20-24 .....	58	44	33	14	4	6	2	161
25-29 .....	13	23	27	4	8	1	—	76
30-34 .....	18	10	20	5	4	2	—	59
35-39 .....	6	1	2	—	1	2	—	12
40-44 .....	7	2	6	1	1	1	—	18
45-49 .....	4	—	3	—	—	1	—	8
50-54 .....	5	6	—	—	—	—	—	11
55-60 .....	1	1	—	—	—	—	—	2
Total .....	204	158	161	34	32	25	10	624
Median .....	20.9	20.9	21.6	22.5	22.5	20.4	16.3	21.1

class period desirable in high schools. The indications are that a period less than sixty minutes in length is adequate for a class period comprising assignment and recitation. With supervised study included, the period apparently should be longer than sixty minutes if the pupil is expected to make all of his preparation within the class time. If preparation is to be expected outside of class time, the function of the supervised study period and its relationship to the outside preparation should be defined.

The distribution of time devoted to tests shows that while the whole of the sixty-minute period is seldom used, nevertheless, tests of thirty-five minutes or more are not infrequent. The tendency in all subjects appears to be in favor of short tests.

Further information as to the types of assignments, recitations, and supervised study used by teachers was secured by means of a number key (Form A). The classification of types was made from three sources: first, practical experience as a teacher; second, observation of a considerable number of recitations and tabulation of the activities observed; and third, a

TABLE XI  
TIME DEVOTED TO TESTS

MINUTES	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PEWMANSHIP	TOTAL
0- 4 .....	—	1	2	5	—	—	2	10
5- 9 .....	9	3	6	3	—	3	6	30
10-14 .....	4	3	8	1	—	1	2	19
15-19 .....	8	3	7	4	—	—	—	22
20-24 .....	1	6	1	1	—	—	—	9
25-29 .....	4	10	2	—	1	—	—	17
30-34 .....	2	—	2	—	—	—	—	4
35-39 .....	5	1	3	—	1	—	—	10
40-44 .....	4	3	6	1	—	—	—	14
45-49 .....	1	—	1	1	1	1	—	5
50-54 .....	—	1	5	—	—	—	—	6
55-60 .....	—	—	3	—	—	1	—	4
Total .....	38	31	46	16	3	6	10	150
Median .....	18.9	24.6	20.0	10.0	37.5	10.0	7.5	18.6

survey of the literature of general and special method noting the types of assignment, recitation, and supervised study mentioned. The classification does not include all of the possible types. There is a certain amount of overlapping. Because of the first mentioned deficiency in the key, a blank is included in each case for reporting other types. The number of times this blank was used gives some indication of the unsatisfactoriness of the classification. The terminology used is such as can readily be understood by a teacher of experience. The use of the numbers permitted the reporting of more than one type for each major phase of the recitation period.

The number of types of assignments given in each recitation period gives some indication of the complexity of tasks set for the pupils. Thus 558, or 78.8 per cent, of the assignments reported were of one type only; 22.2 per cent were combinations of two, three, or four types. No consistent combinations of types of assignments could be discovered except that pages or paragraphs and the continuation of the previous assignment were frequently used in the combinations.

TABLE XII  
TYPES OF ASSIGNMENTS

NUMBER OF TYPES	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL
1 .....	199	141	149	23	17	19	10	558
2 .....	36	25	17	13	9	2	—	102
3 .....	6	11	4	—	7	3	—	31
4 .....	—	2	—	—	2	—	—	4
Total .....	241	179	170	36	35	24	10	695

All of the types of assignments included in the key were used with considerable frequency. The most popular types in order of use as single assignments are: (1) continuation of previous assignment; (2) series of questions or problems; (3) a problem; and (4) topical. Practically only one type of assignment is used in mathematics; all types are used in English almost indiscriminately.

TABLE XIII  
NATURE OF SINGLE ASSIGNMENTS BY SUBJECTS OF STUDY AND THE NATURE OF ASSIGNMENTS COMBINED

TYPE OF ASSIGNMENT	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL	USED IN COMBINATION
1. Topical .....	29	22	2	3	3	1	2	62	41
2. A problem to be solved .....	23	28	12	5	3	—	2	73	21
3. Pages or paragraphs	32	5	3	2	8	—	—	50	60
4. Outline to be filled..	8	13	—	2	—	1	2	26	19
5. Individual reports ..	16	12	—	2	—	2	2	34	39
6. Continuation of previous assignment ...	46	44	15	6	—	1	—	112	58
7. Review .....	20	10	8	1	3	2	2	46	34
8. Series of questions or problems .....	5	1	95	2	—	5	—	108	33
9. Other .....	20	6	14	—	—	7	—	47	11
Total .....	199	141	149	23	17	19	10	558	316

TABLE XIV  
TYPES OF RECITATIONS

NUMBER OF TYPES	ENGLISH	SOCIAL STUDIES	MATHE- MATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL
1	166	121	69	16	3	21	10	406
2	56	38	80	18	7	4	—	203
3	22	9	30	2	8	4	—	75
4	4	6	3	—	8	—	—	21
5	1	—	1	—	3	—	—	5
6	—	—	—	—	—	—	—	—
7	—	—	—	—	1	—	—	1
8	—	—	—	—	1	—	—	1
Total...	249	174	183	36	31	29	10	712

The number of types of recitation procedure occurring in each recitation varies from one to eight, 56.9 per cent of the recitations being of one type only; or, 43.1 per cent were of more than one type. It should be noted that the classification of recitation types is based upon activities actually observed in the classroom rather than the classical types: inductive, deductive, problem solving, drill, etc. The use of more than one type per recitation is some indication of the resourcefulness of teachers. The types most frequently used in the combinations are: (1) drill, (2) reporting, (3) development, and (4) socialized.

In general the types of recitations reported singly indicate that this phase of the lesson procedure is devoted primarily to reproduction of subject matter assigned. The evidence is the frequency of the reporting of assigned work, individual reports, question and answer, and drill. These types account for 46.2 per cent of all single type recitations. Types of procedure adaptable to advancing the pupil's thought beyond the prepared subject matter are reported less frequently.

The number of types of supervised study used in each class period varies from one to five, 66.0 per cent being of one type only. The types occurring most frequently in the combinations are: (1) explanation of difficult points; (2) individual help; and (3) inspection of the students' work.



TABLE XV

NATURE OF SINGLE TYPE RECITATIONS BY SUBJECTS OF STUDY AND NATURE OF RECITATIONS COMBINED

TYPE OF RECITATION	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL	USED IN COMBINATION
1. Topical .....	9	21	—	3	—	—	—	33	53
2. Question and answer	15	15	4	2	—	—	2	38	72
3. Socialized .....	28	24	1	2	—	—	—	55	87
4. Individual reports .	21	17	2	2	—	4	—	46	49
5. Projects .....	5	7	—	1	2	—	2	17	16
6. Oral test .....	7	3	7	—	—	—	2	19	35
7. Development ....	9	8	5	3	—	—	—	25	95
8. Demonstration ....	4	—	10	1	—	1	2	18	35
9. Drill .....	13	1	18	—	—	2	2	36	120
10. Reporting assigned work .....	33	14	14	1	—	6	—	68	101
11. Review .....	6	10	3	1	—	—	—	20	79
12. Other .....	16	1	5	—	1	8	—	32	13
Total .....	166	121	69	16	3	21	10	407	755

TABLE XVI

TYPES OF SUPERVISED STUDY

NUMBER OF TYPES	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PENMANSHIP	TOTAL
1	150	121	96	23	6	10	6	412
2	43	24	29	9	10	8	—	123
3	8	13	27	2	8	7	2	67
4	3	—	8	—	6	—	—	17
5	—	—	1	—	2	—	2	5
Total...	204	158	161	34	32	25	10	624

In general the frequency in which the types of supervised study are reported as single types is indicative of a dearth of devices for use in this phase of the recitation period. The most frequently reported are: (1) explanation of difficult points; (2) individual help; and (3) undirected free study. Besides the

TABLE XVII

NATURE OF SINGLE TYPE SUPERVISED STUDY PERIODS BY SUBJECTS OF STUDY  
AND NATURE OF SUPERVISED STUDY COMBINED

TYPE OF SUPERVISED STUDY	ENGLISH	SOCIAL STUDIES	MATHEMATICS	ELEMENTARY SCIENCE	LATIN	COMMERCIAL	PEWMANSHIP	TOTAL	USED IN COMBINATION
1. Individual help ...	31	12	28	4	—	—	4	79	101
2. Drill .....	7	3	8	1	—	—	2	21	26
3. Suggestion of devices, etc. ....	8	16	2	5	—	1	—	32	62
4. Explanation of difficult points .....	30	21	24	7	—	2	—	84	126
5. Inspection of students' work .....	10	8	5	—	—	3	—	26	83
6. Checking students' work .....	9	4	15	—	1	—	—	29	59
7. Guiding generalizations .....	4	3	1	2	—	—	—	10	21
8. Undirected free study .....	23	33	11	2	5	4	—	78	30
9. Group study .....	15	17	2	2	—	—	—	36	23
10. Library study .....	—	—	—	—	—	—	—	—	10
11. Other .....	13	4	—	—	—	—	—	17	12
Total .....	150	121	96	23	6	10	6	412	553

activities included in the key, few others are reported although many others are possible. The activities reported indicate that in supervised study the teachers usually devote their attention to individual pupils or leave the class to depend upon their own devices.

This report has been presented as an illustration of a method for securing objective data concerning the distribution and use of the time of the class period. Some implications arising from the data have been discussed. By this method the supervisor may secure a composite of the practices within his system, *i.e.*, he may determine the activities performed and their frequency. Knowing these conditions, the job of the supervisor will be objectified. He may: (1) institute training in the activities usually performed to improve efficiency in them; (2) suggest additional activities deemed advisable; and (3) substitute new

types of procedure for activities that are purposeless or ineffective. Some specific uses of the method and its results applicable in any school system are:

1. As a basis for the discussion in teachers' meetings of problems of method.
2. To stimulate interest of the teachers in new methods and devices.
3. As a basis for evaluation of existing practice in the light of educational theory and known laws of learning.
4. As a basis for giving specific directions to teachers for changes in methods where changes are deemed desirable. The method is especially adapted to this use because it is based upon the reports made by the teachers themselves.
5. To diagnose the difficulties of individual teachers by comparison with approved practices and the activities of successful teachers.
6. As a means for teacher self-analysis.
7. To discover weaknesses in the system as operating, hence to direct the attention of the supervisor where attention is needed most.
8. To discover the best methods of teaching through analysis of the activities of the best teachers.
9. To study the effectiveness of class periods of varying length.
10. As a class visiting device. When used for this purpose the items of Form A may be supplemented by other items both objective and subjective. A suggested form of such a supervisory device which is adapted to the more thoroughgoing and detailed procedure of class visitation is given in Form C.

## CHAPTER XI

### A PROPOSED TECHNIQUE FOR ANALYZING THE ACTIVITIES OF INSTRUCTION

GEORGE H. BETTS

Instruction cannot, of course, be standardized even by fields or subjects. Room must be left for the play of personality, for the size and quality of the class, and for other variables. It is nevertheless likely that teachers can profit by analyzing their own classroom procedure and comparing it with that of others in their field. Such analysis will also give the supervisor valuable information.

It is the purpose of this article to suggest a technique by which certain aspects of instruction may be objectively analyzed. The instruments employed were first developed and used in the School of Education of Northwestern University in an effort on the part of the instructors to improve their own teaching. There seems no reason why the method should not be equally applicable to public school classrooms, provided the project has the whole-hearted coöperation of those participating.

#### TIME DISTRIBUTION AMONG CLASSROOM ACTIVITIES

Probably the best objective measure of method as applied to instruction is the distribution of time among the various activities of the class period. If we can know the proportion of time devoted day after day to developing new concepts and fields of thought, to drill, to testing, to assigning new work and suggesting methods of study, to classroom routine, we shall at least have a suggestion of the framework of the method employed.

*Form A* suggests a relatively simple instrument for a time analysis of classroom activities. An attempt has been made to represent the several broad lines into which classroom procedure usually falls, and the more important details under each. The record should be made daily over a period of several weeks, which may or may not be consecutive. Care should be taken to secure

a time which is as nearly representative as possible of the usual procedure. The instructor should not attempt to keep the record himself, for this in itself introduces an abnormal factor sufficient to make the results untrustworthy. In the use made of the instrument as already mentioned, assistants were trained in the meaning of the five groups of activities indicated and were practised for one or more class periods in record making before the actual time-keeping was begun.

It is probable that selected senior high school students can be trained to make such a record with a rather high degree of accuracy. The same student should keep the record for any single course throughout the experiment. An occasional conference between the instructor and the record keeper is desirable. A check for accuracy of analysis and recording can be had by assigning another teacher (who should also have had a period of preliminary practice) to keep a record for a class hour; then compare this record with the record of the student assistant.

No one is justified in saying, of course, just what proportion of time should be given to each of the five groups of activities listed, or even that these five groups properly cover the case for all school subjects. Nor can one specify how much time should be devoted to each detail within the respective groups. The facing of his own practice in the use of class time is likely, however, to do any teacher good, especially if he is at the same time able to compare his time chart with a composite chart for the corps.

When in the case of the teachers of Education, for example, it was found by one instructor that the average time per class period devoted to lectures was twenty minutes for all Education courses and that he was devoting nearly forty minutes to lecturing, he was forced to consider whether he or his colleagues were using the better method. When another instructor found that the average time for roll-taking in all classes was less than one minute, but that he was using three minutes with classes no larger, he changed his system to a more economical one. Still another instructor, whose time sheet showed that he was using less than one minute for assigning each new lesson, learned that the average for all instructors together was nearly four minutes. Were they wasting time or was he losing opportunity, or was there a difference in the courses? The question demanded an answer.

FORM A—TIME ANALYSIS OF CLASSROOM ACTIVITIES

ACTIVITY	MIN. 1ST DAY	MIN. 2ND DAY	MIN. 3RD DAY	MIN. 4TH DAY	MIN. 5TH DAY	MIN. 6TH DAY	MIN. 7TH DAY	MIN. 8TH DAY
<b>I. Developmental Activities</b>								
1. Lectures (with or without demonstration) .....								
2. Questions and answers; discussion .....								
3. Student reporting, oral or written .....								
4. Blackboard work and demonstration .....								
5. Reading, translating, etc., from texts .....								
6. ....								
<b>II. Drill Activities</b>								
1. Oral review or drill on matter previously presented....								
2. Written review or drill on matter previously presented								
<b>III. Testing Activities</b>								
1. Oral quizzes .....								
2. Written tests .....								
3. Discussing results, grades, etc. ....								
4. ....								
<b>IV. Assigning New Work</b>								
1. Indicating amount from assigned text .....								
2. Suggesting bibliography or references .....								
3. Discussing methods of study, standards, etc. ....								
4. ....								

FORM A—Continued

ACTIVITY	MIN. 1ST DAY	MIN. 2ND DAY	MIN. 3RD DAY	MIN. 4TH DAY	MIN. 5TH DAY	MIN. 6TH DAY	MIN. 7TH DAY	MIN. 8TH DAY
V. Routine Activities								
1. Taking roll .....								
2. Distributing papers, etc. ....								
3. Preparing, returning, apparatus, etc. ....								
4. Moving class, as to blackboard .....								
5. ....								

*Form B*, which is to be filled by the instructor, provides for analysis of time devoted by him to course work outside the class period.

#### FORM B—ACTIVITIES ANCILLARY TO CLASSROOM WORK

##### I. General for semester

1. Is there an outline, syllabus, bibliography or other instrument provided for this course? .....
2. If so, approximately how many hours were required for its immediate construction? .....
3. Other than for purposes indicated in (2), approximately how many hours have you spent *this semester* in researches, collection of materials, background reading, etc., *for this course?* .....  
(Base report on *whole semester*, not a fraction.)

##### II. Detail of expenditure of time for two weeks from ....., 192.. to ....., 192..

ACTIVITY	MINUTES—FIRST WEEK					MINUTES—SECOND WEEK				
	M	T	W	T	F	M	T	W	T	
1. Direct preparation for class hour..										
2. Background reading or study .....										
3. Preparing examination questions ..										
4. Grading papers .....										
5. Student conferences on courses ..										
6. Other activities (please specify) ..										

Here again it is impossible to fix a time standard which should govern in the case of any single item. It was found among the Education instructors, however, that six classes out of every seven used syllabi, bibliographies, or other prepared instruments, and that the average time per course that had been expended on the preparation of such materials was 68 hours; and that in addition each syllabus had had an estimated additional 53 hours spent on research, background reading, and the like. These facts at least give each instructor a concrete objective measure, of a kind by which to judge his own practice. So, also, when he learns



that for each class hour his colleagues average 60 minutes on direct preparation of the lesson; 47 minutes on background reading; 10 minutes in the preparation of examination questions; 15 minutes in grading papers; 12 minutes in student conferences; 5 minutes on other activities—a total of nearly two and one-half hours for each hour of instruction.

One objection to *Form B* from the standpoint of the supervisor may be the factor of unreliability due on the one hand to the possibility of falsified report and on the other hand to error of time estimate if an actual record has not been kept covering the time in question. The first of these factors is at the mercy of the ethical quality of those reporting; the second can be controlled by proper provision for the making of time records by coöperating instructors.

#### ORGANIZATION OF MATERIALS BY THE INSTRUCTOR

The amount and distribution of time is not the only factor involved in successful teaching. The skill with which the materials of instruction are organized and used is probably quite as important. *Form C* suggests a means of comparing practice on the several points involved. Some teachers depend almost wholly on a textbook as the basis for instruction, while others in the same

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#### FORM C—ORGANIZATION OF MATERIALS

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##### I. Use made of textbook.

1. Does the course as a whole follow the outline of a textbook:  
(a) closely?..... (b) partially?..... (c) not at all?.....
2. Are the individual recitations based on the matter of the text:  
(a) usually?..... (b) seldom?..... (c) never?.....
3. Do you have the text before you as you conduct the recitation?  
(a) usually?..... (b) seldom?..... (c) never?.....

##### II. Use made of syllabus.

1. Are students supplied with a syllabus? ..... If so,
2. Does the syllabus rather than a textbook supply the outline and scope of the course? .....
3. Of how many pages does the syllabus consist? .....
4. Does the syllabus supply bibliography:  
(a) by topics? ..... (b) general for entire course? .....  
If bibliography is supplied, are (a) chapters or pages cited?.....  
or (b) only title of reference given?...
5. Are students given entire syllabus at beginning of course? .....  
Or section by section as required? .....  
Or at end of course for review? .....

FORM C—*Continued*

- 
6. Do the daily recitations follow the syllabus:
    - (a) closely? .....
    - (b) with modifications? .....
    - (c) little or not at all .....
  7. How long has your present syllabus been in use? .....
  - III. Use made of question lists.
    1. Are students supplied with questions based on the course? .....  
If so, how many questions constitute whole list? .....
    2. If question list is supplied, are the questions used
      - (a) as a basis for daily preparation? .....
      - (b) as a basis for occasional reviews or tests? .....
      - (c) as a basis for final review or examination? .....
    3. If question list is supplied, is bibliography attached
      - (a) by individual questions....
      - (b) by groups of questions?.....
      - (c) for whole list? .....
      - (d) no bibliography furnished?....
    4. How long has such question list been in use?.....
  - IV. Use made of collateral reading.
 

Is collateral reading made a definite requirement?..... If so,

    1. Are students supplied with a list of collateral readings?..... If so,
    2. Are students allowed free selection from this list?.....  
or are certain readings required with others elective?.....
    3. How many volumes are in collateral reading list for this course?...
    4. Are the volumes in collateral reading list placed "on reserve" in the library?.....
    5. Of how many volumes in collateral reading list does the library have duplicate copies? (Indicate how many duplicates in each case.)
    6. Are reading notes required?..... If so, what amount?.....
    7. Are reports required on collateral readings:
      - (a) oral?.....
      - (b) written?.....
    8. Are tests given directly on collateral readings?

subject base their teaching largely on syllabi, outlines, required readings, and the like. Each may profit by comparing his own with the others' methods, and a supervisor needs exact information on such matters from all members of his force.

## TESTING PUPIL ACHIEVEMENT

Wide difference obtains among teachers in the methods of testing pupil achievement and the use made of the results of such tests. Some schools have a policy which all teachers are supposed to follow more or less closely, others leave such matters wholly to the judgment of individual instructors. *Form D* provides a method of recording the practice for individual instructors and thereby securing a basis of comparison for a corps.

## FORM D—TESTS AND THEIR USE

- 
- 
- I. Number of tests *other than final* given in this course:
1. Occupying full class hour .....
  2. Occupying approximately half class hour .....
  3. Occupying 10-20 minutes .....
  4. Occupying less than 10 minutes .....
- II. Do you make previous announcement of full-hour tests? .....  
of shorter tests? .....
- III. Form of examination which predominates (check)
1. Objective (as true-false, completion, etc.) in final examination  
..... shorter examination .....
  2. Essay type in final examination ..... shorter examination .....
  3. Other type (explain)
- IV. Method of administering tests (check)
1. Instructor keeps class under careful surveillance? .....
  2. Instructor remains in the room but does not closely observe  
class? .....
  3. Instructor leaves room during test?
  4. Has your class or department adopted any form of honor system  
to govern examinations? .....
- V. Method commonly followed with test papers (check)
1. Returned, graded, with criticisms noted on individual questions?  
final examination..... shorter examination.....
  2. Returned graded and with general criticisms on paper as a whole?  
final examination..... shorter examination.....
  3. Returned graded but no criticisms on paper?  
final examination..... shorter examination.....
  4. Papers not returned but grades announced?  
final examination..... shorter examination.....
  5. Papers not returned, grades not announced?  
final examination..... shorter examination.....
  6. Papers returned, examination discussed with class?  
final examination..... shorter examination.....
  7. Other method (explain)
- VI. In making up semester grade, approximately what proportion of the  
final grade depends on each of the following factors:
1. Final examination?.....
  2. Other examinations during term?
  3. Reports on required readings?.....
  4. Term papers?.....
  5. Reports on special assignments?.....
  6. Laboratory work?.....
  7. Response in recitations or classroom attitude?
  8. Other factors (explain)

## FORM E—ADMINISTRATION OF COURSE

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Method of dealing with each of the following (check):

- I. Absences
  - 1. Record and report but make no additional requirement and impose no penalty on student?.....
  - 2. Require make-up work of student?.....
  - 3. Reduce student's grade?.....
  - 4. Impose special examination?.....
  - 5. Other method (explain).....
- II. Tardiness
  - 1. Pass by unnoticed?.....
  - 2. Treat accumulated tardinesses as absences?..... How many to one absence?.....
  - 3. Other method (explain).....
- III. Inattention (where any exists)
  - 1. Ignore?.....
  - 2. Call on student to recite?.....
  - 3. Rebuke?.....
  - 4. Direct remark to student?.....
  - 5. Other method (explain).....
- IV. Unprepared lessons or assignments
  - 1. Pass over without remark or rebuke?.....
  - 2. Call for explanation?.....
  - 3. Call student for private conference?.....
  - 4. Make special assignment?.....
  - 5. Warn?.....
  - 6. Other method (explain).....
- V. Continued failure or near-failure
  - 1. Ignore, no grades given out until end of semester?.....
  - 2. Ignore except the warning of low grades given?.....
  - 3. Give specific warning but without further attention?.....
  - 4. Call student for conference to discover causes?.....
  - 5. Other method (explain).....

It may be remarked again in this connection that the procedure here proposed does not settle anything. It does, however, serve to locate a problem. It is found that one teacher is using exclusively the objective form of tests and that another is using only the essay form; another combines the two forms. Again, some teachers announce all tests in advance, while others uniformly give drop tests except the final. One teacher returns all test papers, another returns none. One teacher, after an examination, takes occasion to discuss the questions and the answers that were given; another makes no comments, leaving the pupils

to profit as they can by their own knowledge of their errors and by the grades received. Out of such immediate concrete differences as these, questions as to the best procedure will emerge, teachers will subject their own method to scrutiny, and supervisors will find occasions to offer assistance or judge efficiency.

#### ADMINISTERING THE CLASSROOM

The success of instruction is conditioned in part by certain details of administration applied to the course as a whole. Each of the items of *Form E* is small, but all taken together are far from unimportant.

It is obvious, of course, that any one or more of these aspects of analysis of procedure may be used without all. Possibly the best plan is not to undertake to use all the forms at the same time. A convenient division is to carry out as one project the analysis of time distribution; then make a second project out of the remaining analyses.

If a corps of teachers will heartily enter into some such study of their own procedures as the one suggested, it can hardly be conceived that there need be any dry programs in their teachers' meetings for the year. If a supervisor of instruction has such data available for each teacher, he will at least have a number of objective starting points for his criticisms and suggestions.

## CHAPTER XII

### DIAGNOSTIC TECHNIQUE IN THE SUPERVISION OF READING INSTRUCTION

CLARENCE R. STONE

Various studies of supervisory activities of principals indicate a serious lack of investigation and analysis as a basis for other activities designed to improve instruction. The same is probably true in the case of other supervisory officials. In various centers this problem is being attacked vigorously, and no doubt many progressive principals and supervisors do proceed on the basis of careful investigation and utilize a comprehensive plan of analysis. In the most effective type of supervision of reading instruction, painstaking study of the situation in the school in the light of carefully formulated standards and use of a diagnostic technique for determining the supervisory needs of a teacher are essential. While standards of universal application and standards related to types of method have been very helpful, we need also standards and diagnostic technique for each activity or subject forming a basis of systematic instruction.

The list of items to consider in determining the supervisory needs of a teacher with reference to a particular activity, such as reading instruction, should constitute a fairly complete analysis inclusive of the principal objectives and main teaching difficulties. In other words, the criterion of comprehensiveness should be applied in judging such a list.

Another criterion is that of definiteness and objectivity adequate for reliability. Each item in the list should be of such a character that it is possible for several successful supervisors with standard professional training to arrive at approximately the same evaluation of the teacher's skill with respect to the item.

A good organization of items results in a maximum degree of independence of the different items. It is probably impossible to avoid some overlapping, and in some cases several items which should be mentioned separately may depend upon a common

underlying ability of the teacher. But each item should represent a distinct, specific, instructional problem.

In a list of items to consider in the analysis of the supervisory needs of a teacher in relation to instruction in a particular subject, the majority of the items should be stated in language that gives a clear connection with some specific teaching problem in this particular field. Indeed, there are several distinct types of activities or lessons in middle-grade reading, each with its peculiar teaching difficulties. Consequently, it is advisable in this case to organize the items under headings designating main types of activities according to function and procedure.

Thus we see that the criteria for a list of items to consider in determining the supervisory needs of a teacher in her instruction in a particular subject are comprehensiveness, objectivity, a maximum degree of independence of the items, and relevancy with respect to the objectives and peculiar instructional problems of the subject.

While a detailed analysis of a particular recitation, study period, or class session is often a valuable undertaking in supervision, a form of analysis which estimates the teacher's skill with reference to a list of items on a broader basis is equally important.

The following set of standards<sup>1</sup> in reading instruction and the form for a cumulative analysis of the supervisory needs of a teacher are offered as illustrations of material which might be coöperatively formulated by supervisors, principals, and teachers in connection with instruction in any particular activity or subject.

#### STANDARDS IN READING INSTRUCTION IN THE MIDDLE GRADES

##### I. Functions of reading instruction in these grades.

1. To stimulate wide and varied independent recreative reading and to guide the pupils in selecting desirable books and magazines.
2. To develop ability to interpret and appreciate classical literary selections suitable to the comprehension level of the group.
3. To help each child to improve and refine his habits of recognition in both oral and silent reading and to develop a maximum rate in silent reading consistent with adequate comprehension for the purpose in hand.

<sup>1</sup> Reprinted from the writer's *Supervision by the Principal*, by permission of the publishers, Houghton Mifflin Company, 1929.

4. To aid each pupil in reaching a relatively high level of ability to grasp meanings of words, phrases, sentences, paragraphs, sections, and whole selections of standard difficulty for the group.
5. To establish the reading habits and the use of the special reading techniques essential to economical and efficient study required in the various subjects in these grades.
6. To develop the ability to convey the meaning and feeling of selections to auditors by means of oral reading.

## II. Activities and methods.

1. There should be a well-balanced program of activities in reading planned to realize the essential functions of reading instruction in these grades.
2. The plan of procedure of a particular lesson should be adapted to the type of activity and determined by the primary governing purpose.
3. The method of the whole is superior to the method of details in teaching a literary selection.
4. Problems set by the teacher as a basis of interpretation of a literary selection should hinge upon the major values or significance of the selection, should have a strong interest appeal to the pupils, and should be clear and definite in their wording.
5. In developing appreciation for poetry, oral reading, rhythmic physical movement, and music as appropriate to the poem should be utilized.
6. In lessons designed for special drill, practice, or training to develop skill in a particular phase of reading, the method technique should be adapted to the realization of a clearly conceived specific training purpose or purposes.
7. In test lessons standard procedures determined by the purpose of the test are essential.
8. Reading periods should be set aside regularly for the promotion of individual recreative reading and should be used mainly to develop varied, desirable, and permanent interests in reading.
9. In lessons in audience reading the main stress should be upon the effective conveyance of thought and feeling to auditors solely dependent upon the reader.
10. Good method technique secures a high degree of attention, keen interest, and a wholesome general attitude on the part of the pupils.
11. Good method technique provides for attention to individual needs and to varying abilities and interests.

## III. Special classification of pupils.

1. The classroom organization should be such that it is possible to have the material being used by each pupil adapted in difficulty to the reading ability of the pupil.
2. The classroom organization for reading instruction should be of such a character that it is economical for purposes of instruction.



3. Classification of pupils should be tentative and adjustments easily made.

#### IV. Materials.

1. For group reading and discussion of literary selections there should be readily available sets of literary readers of varying difficulty to provide each group with material of the proper level of difficulty.
2. Each room should be provided with a set of texts for specialized training in silent reading for each inferior and each average group.
3. Small sets of texts suitable for group-to-group audience reading should be available.
4. The supply of books and magazines for individual recreative reading should be varied as to type of content and interest appeal and there should be a range in difficulty comparable to the range in depth of comprehension of the pupils.

#### CUMULATIVE ANALYSIS OF SUPERVISORY NEEDS OF A TEACHER OF READING IN THE MIDDLE GRADES

Name of the Teacher .....	EVALUATIONS							
	1	2	3	4	5	6	7	8
I. Independent Recreative Reading								
Skill of teacher in:								
1. Aiding in building up a classroom library .....								
2. Motivating independent reading and establishing the habit of regular reading								
3. Establishing varied reading interests.								
4. Improving reading tastes .....								
5. Guiding pupils in obtaining books suitable as to difficulty and interest..								
II. Group Reading and Discussion of Literary Selection								
Skill of teacher in:								
1. Grouping of pupils according to depth of comprehension and appreciation ..								
2. Choosing selections of the proper level of difficulty for the group .....								
3. Choosing selections with a strong interest appeal .....								
4. Utilizing available materials .....								
5. Knowing the function and main value of the selection .....								
6. Using a brief effective approach step								
7. Making clear, definite assignments involving motivating specific purposes								

CUMULATIVE ANALYSIS OF SUPERVISORY NEEDS OF A TEACHER OF READING IN  
THE MIDDLE GRADES—*Continued*

Name of the Teacher.....	EVALUATIONS							
	1	2	3	4	5	6	7	8
8. Utilizing the problem and the project appropriately and effectively .....								
9. Providing for pupil initiative, planning, and responsibility .....								
10. Developing judgment of relative values in various types of reading material .....								
11. Securing a high degree of attention and keen interest .....								
12. Utilizing oral reading, music, and rhythmic movement in teaching poetry								
III. Audience Reading								
Skill of teacher in:								
1. Providing plans for motivated audience situations with a maximum number reading .....								
2. Leading pupils to choose interesting appropriate selections of proper difficulty								
3. Developing the attitude essential in reading to an audience .....								
4. Developing skill in essential elements: proper emphasis, suitable rate, voice.								
5. Maintaining a high degree of attention on the part of the audience ....								
IV. Practice Lessons in Oral Reading for Groups Weak in Mechanics of Reading								
Skill of teacher in:								
1. Providing strong motives and maintaining keen interest in improvement								
2. Diagnosing individual cases and providing proper corrective measures ...								
3. Training pupils in effective methods of attack on words causing difficulty ....								
4. Developing fluency .....								
V. Specialized Training in Silent Reading								
Skill of teacher in:								
1. Grouping the pupils according to reading level and practice needs ....								
2. Selecting and devising appropriate material of the proper level of difficulty								

CUMULATIVE ANALYSIS OF SUPERVISORY NEEDS OF A TEACHER OF READING IN  
THE MIDDLE GRADES—*Continued*

Name of the Teacher.....	EVALUATIONS							
	1	2	3	4	5	6	7	8
3. Utilizing method suggestions in the text or manual .....								
4. Adapting the procedure to the governing purpose .....								
5. Handling the details of the method technique .....								
6. Arousing a desire to improve and maintaining keen interest in the practice .....								
7. Diagnosing cases of pronounced deficiencies and providing suitable practice .....								
8. Leading pupils to apply good reading technique in study of other subjects								
9. Arousing interests in extensive reading in connection with other subjects								
VI. Reading Tests								
Skill of teacher in:								
1. Utilizing provisions that enable the teacher to obtain test materials .....								
2. Using results for classification, diagnosis, setting goals, measuring progress								
3. Administering standard tests .....								
4. Scoring papers and recording data ...								
5. Interpreting the results of tests .....								

Evaluation symbols: 0 = no evidence; . = average; + = worthy of special commendation and relay to other teachers; — = needs help.

It should be clearly understood that the purpose of the cumulative analysis is not to rate the teacher but to locate his needs as a necessary prerequisite to intelligent procedure in helping him to improve. Many principals and special supervisors, of course, follow a similar procedure without reducing the list of items to writing. In the use of a written list formulated according to important criteria, the supervisor is less likely to fail to consider some important point in making his analysis. His diagnosis on the basis of a well-formulated analysis is more thorough and more objective than a diagnosis without such an analysis. It is not claimed that the subjective element is eliminated. The

accuracy of the analysis depends upon the judgment of the supervisor. Likewise, judgment enters into the grading of handwriting by means of a scale or in grading samples of corn. But the list of items based upon acceptable standards is a means of making the supervisor's judgment more valid and more reliable. A principal or other supervisor who will do the professional study necessary to formulate a set of standards and a cumulative form of analysis for some important phase or field of instruction will find that his judgment has been broadened and deepened. Using a well-formulated analysis is the best means of freeing one's self from the narrowing influence of personal bias.

A distinct and important characteristic of the preceding form of analysis is the cumulative feature. This feature makes for economy in supervision and provides a rough indication of the progress of the teacher and the effect of supervisory efforts from term to term or year to year. In the absence of any technique for measuring the effectiveness of supervision, this plan should prove superior to mere judgment without any records.

## CHAPTER XIII

### OBJECTIVE TECHNIQUES IN SUPERVISING INSTRUCTION IN READING

WILLIAM S. GRAY

One of the most urgent needs today in school supervision is for objective techniques which may be used in determining the nature and effectiveness of the instruction provided in different schools and classrooms. This is particularly true in the case of any subject, such as reading, in which radical changes are taking place in both the content and methods of teaching. The value of supervisory techniques is greatly increased if they not only reveal the nature and effectiveness of teaching but in addition secure information that may be used in modifying and improving instruction. It is the purpose of this article to describe briefly techniques that may be used in securing information concerning six specific phases of reading instruction. Many other techniques are used widely in supervising reading. Those which are described merely illustrate types of information that may be secured through the use of carefully planned techniques.

#### AIMS OF TEACHING READING

Objective studies of the aims of teaching reading have been made to advantage by supervisors and principals in such cities as Rochester, New York. As a matter of fact, the progressive work in reading which is exemplified in that city dates back to an objective study of aims made almost a decade ago. In a study carried on by the writer, in 1925-1926, the teachers of 34 schools in northern Illinois were asked to record the aims of greatest importance in teaching reading to their pupils. Reports were received from 404 teachers in grades one to six inclusive. The specific aims reported were classified under three general headings, namely, the enrichment of experience, the increase of interests, and the development of essential habits and skills.

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Representative sections of the resulting tabulation, including frequencies, follow:

	FREQUENCY
1. The enrichment of experience.	
a. To give the pupil new experience .....	24
b. To give the pupil pleasure .....	62
2. The increase of interests.	
a. To cultivate a love for good reading .....	89
b. To give the pupil a desire to read .....	67
c. To develop an interest in reading .....	51
3. The development of essential habits and skills.	
(Comprehension)	
a. To get thought .....	212
b. To get the thought quickly and easily .....	42
c. To enable the pupil to interpret what he reads .....	30
(Recognition)	
a. To master the mechanics of reading .....	45
b. To teach pupils to attack new words .....	29
c. To secure accuracy in word recognition .....	24
(Oral Reading)	
a. To secure correct enunciation and pronunciation in oral reading .....	85
b. To secure good expression .....	66
c. To secure correct fluent oral reading .....	31

The complete tabulation, including about seventy items, showed the frequency of mention of each item in each grade. Supplementary tables contained corresponding facts for each school. A comparison of the tables for individual schools with the general summary table revealed striking differences which called for vigorous supervisory action. For example, some schools placed most emphasis on comprehension, others on the mechanics of reading, and still others on oral interpretation. Copies of the summary table and of the tables for specific schools were placed in the hands of the teachers of the respective schools. As a rule significant differences were noted at once and pointed questions were raised by the teachers concerning both the major objectives of reading instruction and the aims for specific grades. These questions were discussed frankly, an effort being made to cultivate an inquiring, open-minded attitude toward the problems of reading instruction.

As interest among the teachers increased, they were referred

to such sources as the *Report of the National Committee on Reading* and recent textbooks on reading, in order to become acquainted with current statements of the aims and objectives of teaching reading. During the course of a few weeks a broader view of the problems of teaching reading invariably developed. The technique employed, therefore, in determining the aims which teachers thought they emphasized in teaching also supplied information that was used as a point of departure in developing a broader grasp of current reading problems.

A more elaborate technique of studying aims has been developed by Brueckner and Cutright,<sup>1</sup> who prepared a detailed list of 42 objectives of work-type reading in grades three to eight, inclusive. A section of the inventory follows:

- C. Ability to select and evaluate material needed requires
  - 12. Judging the validity of information, which suggests:
    - a. Practice in noting the date of publication.
    - b. Practice in noting the author's name and position.
  - 13. Choosing ideas from different sources which explain or supplement one another, which suggests:
    - a. Finding like statements in two articles upon the same topic.
  - 14. Discovering different ideas in different sources, which suggests:
    - a. Reading two articles upon the same topic to discover points of difference.
  - 15. Deciding whether a given question is answered, which suggests:
    - a. Answering a series of *Yes-No, Didn't-Say* questions.
    - b. Skimming an article to determine if a particular question is answered.

In order to determine the specific objectives of work-type reading taught in the schools, the principals of Minneapolis were given training in identifying the objectives of reading lessons observed. Following their observations, the principals made reports to the supervisors on blanks provided for that purpose. The reports for 620 classes were then summarized to show the number of times each of the 42 objectives was reported as a major objective and the number of times it was suggested as a minor objective. The reports when tabulated indicated the following order of importance of groups of reading objectives as exemplified in the lessons taught:

<sup>1</sup> Brueckner, Leo J., and Cutright, Prudence, *The Technics and Evaluation of a Supervisory Program in Work Reading in the Minneapolis Public Schools*. Educational Bulletin No. 12, Minneapolis, Minnesota.

	PER CENT
Ability to comprehend quickly what is read .....	32.2
Ability to locate material quickly .....	30.0
Ability to organize what is read .....	23.2
Ability to select and evaluate material read .....	8.1
Ability to remember what is read .....	2.5
A knowledge of the best sources of material .....	0.1

"The results of the survey showed that more emphasis should be placed upon the development of certain vital study habits." As a consequence, a constructive supervisory program was organized and carried out vigorously. At the close of the training program, the principals again observed 625 specially prepared lessons and reported on them, using the same procedure as at the beginning of the experiment. The results showed significant changes in the nature of the objectives emphasized. The information secured did not indicate the value of the changes which had been made. It did show, however, the specific objectives which were emphasized most after a period of training. In commenting on the value of the technique employed, Brueckner and Cutright made the following statements:

1. They give the supervisory group in a large community a better picture of the current practices than can be secured by any other technique in current use.
2. The procedure which was used has a very important place in the actual improvement of teaching, since training can be carried on where the greatest need is shown.
3. The teachers of a given community can be helped to analyze and evaluate their own teaching in a very effective way.

#### TIME ACTIVITY ANALYSIS

The amount of time devoted to different phases of reading instruction indicates to a greater or less extent the nature of the instruction provided. It is important, therefore, that supervisors make time analyses at frequent intervals to determine how the time available for reading is being used. Two examples will be presented, one of which is relatively simple and the other more comprehensive and detailed. In the Indianapolis Reading Survey,<sup>2</sup> the teachers were asked the following questions: "What percentage of the time set aside for reading in your grade is given to oral-reading instruction?" "What percentage of the time

<sup>2</sup> Gray, William S., "Reading in the Elementary Schools of Indianapolis." *Elementary School Journal*, 19: 348-349 (January, 1919).



set aside for reading in your grade is given to silent-reading instruction?" The reports revealed certain central tendencies. For example, the percentage of time given to oral reading decreased and the percentage of time given to silent reading increased steadily until the fourth grade. Beyond that grade the percentage of time given to oral reading increased in many schools. The reports revealed also very wide variations among teachers in the amount of time given to each type of reading. Such information suggests a number of important questions which supervisors and teachers must face frankly: What in general should be the percentage of time to devote to oral and to silent reading? Is the answer uniform for all classrooms at a given grade level or does it vary with conditions? Are individual teachers justified in departing widely from the most frequent practice? If so, under what conditions?

A much more detailed type of time analysis has been reported by Brueckner.<sup>3</sup> The chart on which the analysis is made includes the names of various types of activities which may be provided during a reading lesson as represented by the list that follows:

1. Pure phonetic drill to develop independence in word recognition.
2. Word drill connected with daily reading work for meaning and pronunciation.
3. Oral reading: books, blackboards, cards, etc.
4. Flash card drills to develop silent reading ability.
5. Directed silent reading.
6. Combination of oral and silent reading.
7. Undirected free silent reading.
8. Illustration and handwork.
9. Dramatization.
10. Oral language based on reading lesson during reading period.
11. Written language work based on reading lesson during reading period.
12. Use of arithmetic, geography, etc., material during reading period.
13. Attention to needs of individual pupils.
14. Tests, formal and informal.

<sup>3</sup> Brueckner, Leo J., "The Value of Time Analysis of Classroom Activity as a Supervisory Technique." *Elementary School Journal*, 25: 518-521 (March, 1925).

This list, which may be adapted to meet the specific needs of any school system, was presented to the teachers of the first four grades for use in self-diagnosis. "In the vertical columns provided for the days of the school week the teacher records the amount of time spent each day on each type of activity. In the last vertical column the teacher records the total amount of time devoted to each activity during the week. At the foot of the table the teacher records the total amount of time for each day." Records from teachers of several schools enable a principal or supervisor to make intensive studies of different phases of class work, to discuss with teachers their own activities as recorded on their charts, and to compare the time distribution of different teachers. Not infrequently studies of the practices of the teachers securing best results may suggest changes that should be made in various classrooms. Another very valuable service rendered by the chart is that it suggests important questions to those who use and study it. For example, the following questions were raised in the minds of the Minneapolis teachers who participated: How much time should be given to phonetics? How much time should be given to oral reading grade by grade? Should all of these activities be engaged in each week? Is enough time given to tests and remedial work? Should there be more dramatization?

#### TEACHING DIFFICULTIES AND METHODS OF OVERCOMING THEM

The kinds of difficulties which teachers encounter in teaching reading and the methods which they employ in overcoming them may be studied more or less objectively. In the study of 34 schools referred to earlier in this report, the teachers of each of the first six grades were asked to submit a list of the chief difficulties which they encountered in such matters as teaching pupils to read thoughtfully, in adapting reading instruction to the needs of small groups and to provide for individual differences, and in stimulating independent reading interests. They were also asked to outline the methods which they employed in meeting these difficulties. As reports were submitted on a given problem, a list was prepared of all the difficulties which were mentioned. The methods employed in meeting these difficulties were then classified under appropriate headings. The records for different schools and grades were indicated separately so that it was possible to recognize readily the nature of the difficulties

reported by a given school and the variety of methods used. The list that follows includes seven difficulties in teaching pupils to read thoughtfully and the methods that were reported by first grade teachers in overcoming them. Not more than one-third of the total number of difficulties reported are included in the list.

*Difficulties involved in stimulating interest.*

1. Use simple material.
2. Encourage pupils to ask questions.
3. Score pupils on their silent reading ability.
4. Permit pupils to assist in conducting reading activities.
5. Use many pictures.
6. Provide motives for reading.
7. Ask questions which may be answered by reading.
8. Have pupils dramatize stories.
9. Direct attention to the content of what is read.
10. Encourage independent thinking.
11. Compare blackboard stories involving the children's names.

*Difficulties involved in securing a thoughtful attitude.*

1. Use many materials before beginning the primer: sentences to be acted; short stories dictated by pupils; rhymes.
2. Have pupils dramatize sentences and stories.
3. Have pupils point to the illustration while reading.
4. Have pupils read and follow simple directions.
5. Tell pupils to read preparatory to drawing a cut-out picture.
6. Ask thought questions about sentences, later about paragraphs, and, finally, about entire stories.
7. Use riddles for silent reading; pupils may whisper the answers to you or draw them on the board.
8. Ask pupils to read orally the part that tells what the Little Red Hen found, etc.
9. Direct pupils' silent reading by questions on the blackboard.
10. Have an abundance of interesting stories at hand.
11. Encourage children to bring pictures from home to illustrate stories read in school.
12. Let pupils look ahead in the reader to see what the new stories are about.
13. Have a library table; let pupils bring books for it; encourage them to tell each other which stories they have enjoyed.

*Difficulties presented by pupils of limited experience.*

1. Enrich the pupil's experience by means of pictures, rhymes, stories, and talks.
2. Use much supplementary material.
3. Discuss incidents in the story read.
4. Have pupils reread stories; emphasize the important points.

*Failure of pupils to concentrate.*

1. Use simple, interesting material.
2. Call attention to the meaning of illustrations.
3. Tell pupils to find what part of the story a picture illustrates.
4. Have pupils do construction work from written directions.
5. Compose stories from the original sentences of pupils.
6. Stimulate interest by discussions, by telling similar stories, and by using pictures.

*Inadequacy of pupils' meaning vocabularies.*

1. Have pupils note the meaning of the words as used in sentences.
2. Tell pupils the meanings of unfamiliar words.
3. Have pupils draw a picture for each word or group of words on a list.
4. Have pupils label pictures.
5. Have pupils join each word on a list to the appropriate picture.
6. Allow pupils to dramatize sentences.

*Failure of pupils to group words into thought units.*

1. Present all words in phrase groups.
2. Make children aware of this difficulty.

*Tendency of pupils to guess.*

1. Talk over the lesson with the pupils before they read it.
2. Have pupils read silently first; assist them with difficult words.

Similar summaries were prepared for the remaining elementary school grades. A large master chart showed the nature of the difficulties reported by each school and grade and the variety of methods used in overcoming them. An analysis of the facts recorded revealed various significant items of information, such as the nature of the difficulties reported by the teachers in each grade, the changes from grade to grade, and the number and kinds of difficulties recognized by the teachers of each school. It was found that some schools which were making least satisfactory progress as revealed by tests and classroom observations reported few or no difficulties. This fact suggested the need of help in diagnosing reading problems more accurately. With respect to methods of overcoming difficulties the chart revealed the nature and variety of the devices employed, some of which were appropriate and others inappropriate. The teachers of certain schools reported many valuable methods while the teachers of other schools reported methods which bore little or no relation to the difficulties under which they were classified. Such facts suggested many supervisory problems requiring tact, strong leadership, and helpful guidance.

## GROUP APPLICATION AND ATTENTION

It is very desirable, particularly during silent reading or study periods, to determine the extent to which pupils apply themselves to the tasks assigned. For this purpose a "Group Application and Attention Chart" has been designed which possesses unique supervisory possibilities. As indicated on the accompanying sample chart, spaces are provided for records of the activities of pupils for a period of thirty minutes. Through the use of the symbols shown at the bottom of the chart, a supervisor or principal can record the activity of each pupil at intervals of one minute each. This is made possible by the fact that no entry is recorded for those who are attending. Since only a small number, as a rule, are not attending at a given moment, the recording of the essential facts requires very little time. As the work proceeds from phase to phase, the supervisor or principal makes a brief note of the change, as indicated on the chart in the blank for "Phases."

At the lower end of each vertical line in the space for totals, the entire number of pupils attending to their reading or study during that minute is recorded. Directly below is inserted the percentage of pupils attending. At the right of the thirty-minute section of the chart are recorded the total number of minutes and the percentage of application of each pupil. "The total number of pupil-minutes of application is found either by taking the sum of the minutes of application for all pupils or by taking the aggregate of the pupils attending minute by minute. This, divided by the product of the number of pupils multiplied by the total number of minutes, gives the percentage of attention for the group as a whole." The graph showing the total application per minute may represent either the number or the percentage of pupils attending each minute. Similarly the graph showing pupil application may represent either the number of minutes or the percentage of attention of each pupil for the period studied.

The entries in the accompanying chart show individual and group application and attention during a Community Civics class period devoted largely to the reading of supplementary books. Similar charts may be prepared for silent reading or study in any grade either in the classroom or in the library.

Such a chart is of value also in securing a record of the application of pupils in seat work or in any activity requiring close attention. As records accumulate, a supervisor has an excellent opportunity to compare the attention and application secured throughout schools and in particular grades. Teachers needing special help may be located in this way. Furthermore, an analysis of the entries in the chart often reveals unusually troublesome pupils and not infrequently suggests specific causes leading to inattention.

#### INDEPENDENT READING RECORDS

One measure of the efficiency of instruction in reading is the amount and character of the independent reading which children do. As a means of determining the number and kinds of books read, the source of the reading material, and pupils' judgments of books read, they are often asked to fill out and hand in slips similar to the form that follows:

1. Title of book .....
2. Author .....
3. Your name ..... Age..... Boy or Girl.....
4. School ..... Grade..... Teacher.....
5. Check the statement below which tells where you got the book.
 

—At school	—At home
—From the public library	—I borrowed it
6. Check the word or words which tell how much of the book you read.
 

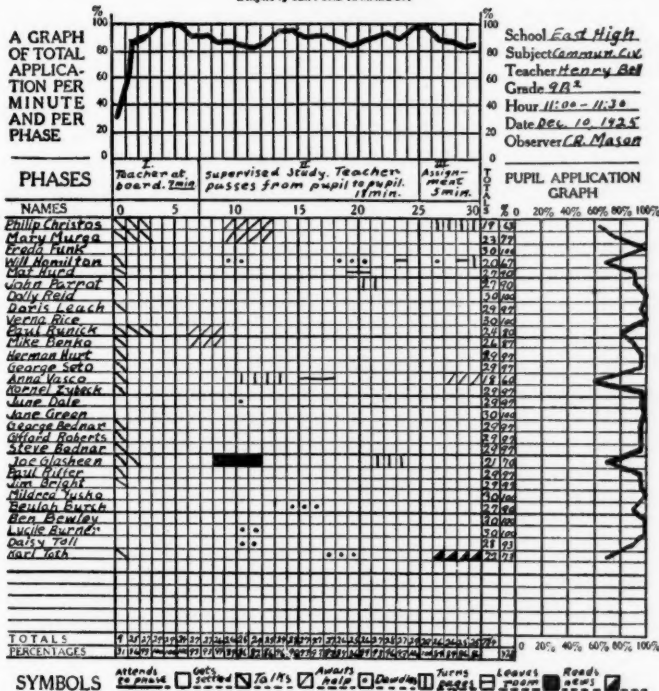
—All	—Part of it
------	-------------
7. Check the statement in each column which gives your opinion of the book.
 

—One of the best books I ever read	—Too easy
—A good book, I like it	—Just about right
—Not very interesting	—A little hard
—I don't like it	—Too hard
8. On the back of this slip, write a note to your teacher telling her why you like or do not like this book.

A summary based on the reports submitted from several schools during the course of a month or a year indicates the success of different schools and grades in securing independent reading. With such facts in mind a subsequent study may be made to determine the methods which schools employ in stimulating interest in independent reading. Not infrequently very valuable suggestions can be secured from records of the practices of teachers who are unusually successful in cultivating wide reading interests.

## GROUP APPLICATION AND ATTENTION CHART

Designed by CLIFFORD R. MADDOX



## RECORDS OF ACHIEVEMENT

The use of standardized and informal tests is one of the most frequently used methods of securing objective evidence concerning the results of reading instruction. The intelligent use of tests provides a wide variety of types of information of which the following are examples: the levels of achievement attained by schools, grades, and individual pupils; the rate of progress in different phases of reading; the kinds of habits and skills which require greater emphasis in each grade; the changes in the classification of pupils which are desirable; the pupils in a grade or classroom whose needs in one or more phases of reading are similar; the various needs of individual pupils. As the results of tests accumulate, a supervisor should serve as a progressive, stimulating leader. He should aid in defining appropriate standards in various schools and classrooms, in determining phases of instruction which require greater emphasis, in distinguishing specific needs of a class or of individual pupils, and in providing teachers with the various kinds of help which are needed. In view of the fact that the uses of tests have been discussed so widely during recent years, no additional comments will be made here concerning them.

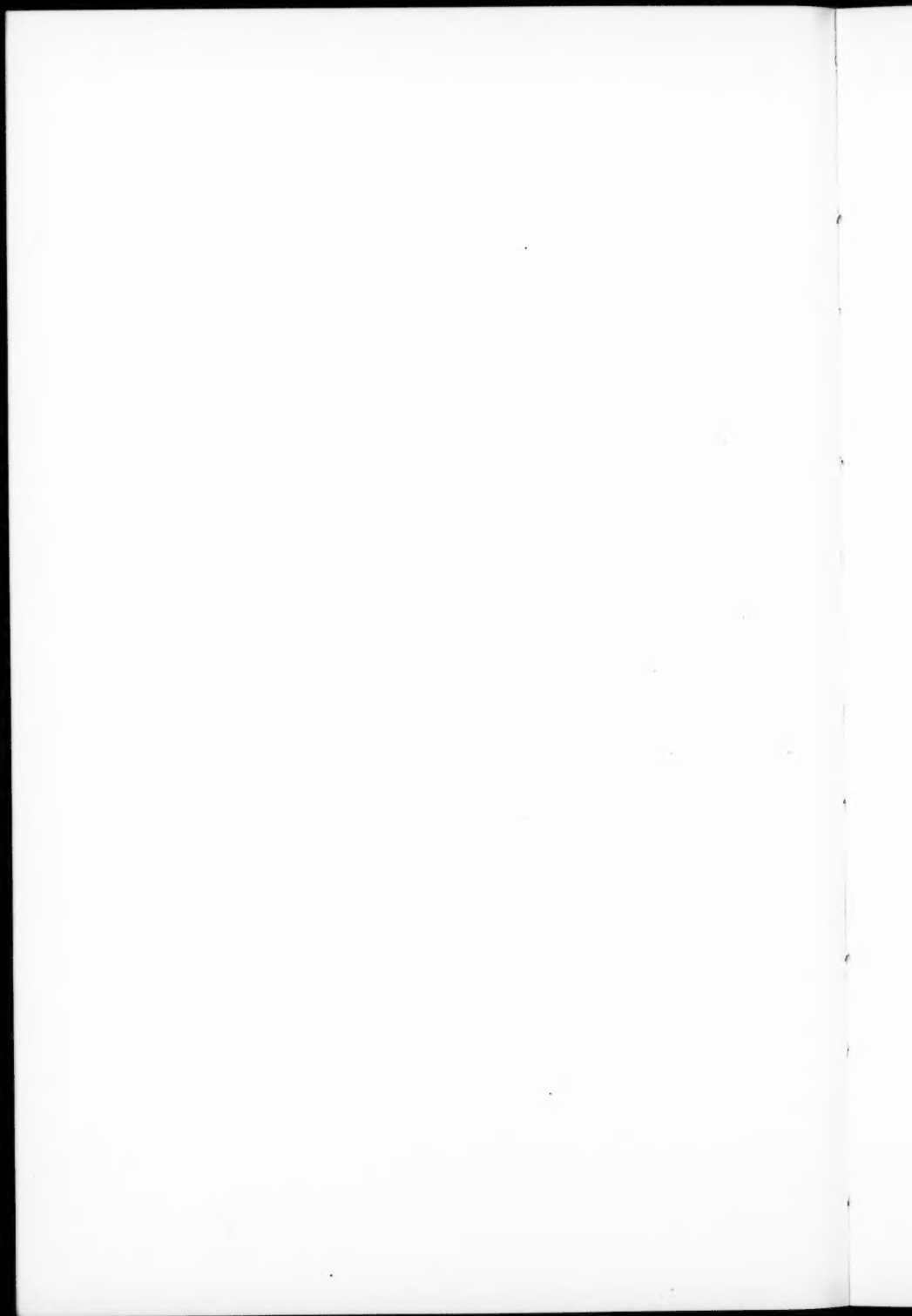
## CONCLUDING STATEMENTS

The foregoing discussion has suggested techniques which may be employed in making supervisory studies of different phases of reading. Similar techniques may be used to advantage in studying a wide range of reading problems. It is of great importance that the information secured be accurate and objective. When such data are available a supervisor may proceed with intelligence and confidence in meeting his major obligation of improving instruction.



**SECTION FIVE**

**TECHNIQUES FOR EVALUATING METHODS  
OF MAKING OBJECTIVE STUDIES  
OF CLASSROOM PROCEDURES**



## CHAPTER XIV

### A METHOD FOR OBSERVATIONAL MEASUREMENT<sup>1</sup>

WILLARD C. OLSON

The object of the present report is to describe a natural history approach to the problem of measurement—the systematic observation of the behavior of an individual in a given environment. For many purposes observations of the behavior of an individual are reported in terms which indicate simply the presence or absence of certain traits. For measurement purposes, however, observations should yield a quantitative statement in terms of amount for the trait in question. In the method to be described the range of observation has been restricted and the data collected in such a manner as to yield quantitative scores of determinable reliability.

The technique is apparently applicable to the measurement of any trait which can be described in terms of overt behavior. The essential steps consist in (1) the selection and description of the behavior to be observed; (2) the definition of the unit of measurement; (3) the description of the conditions of observation; and (4) the description of the method of making the record. The application of the technique results in scores which may be studied as to reliability, validity, and discriminatory capacity. The data used to illustrate the method will be drawn from a study concerned with the measurement and incidence of nervous habits in children.

#### SELECTION AND DESCRIPTION OF THE BEHAVIOR TO BE STUDIED

The clinical literature supplies considerable evidence that various involuntary movements may be considered as indicators of an undesirable nervous condition. This literature was accord-

<sup>1</sup> This chapter is based on a study to appear shortly as a monograph of the Institute of Child Welfare of the University of Minnesota under the title, "The Measurement of Nervous Habits: A Quantitative Study of Normal Children." The study was pursued under a grant as Fellow of the National Research Council Board of Fellowships in the Biological Sciences (Psychology).

ingly analyzed and an inventory obtained to furnish the objective symptomatology which would serve as a basis for the observational measurement of nervous habits.<sup>2</sup>

After some preliminary observations guided by the inventory, it was found desirable to group certain items into broader categories. Groupings of habits were made as follows:

1. Oral (sucking thumb, sucking fingers, biting nails, protruding tongue).
2. Nasal (picking nose, scratching nose, wrinkling nose).
3. Manual (picking fingers, writhing hands, clenching fists).
4. Hirsutal (pulling and twisting hair, scratching head).
5. Aural (pulling ear, picking ear).
6. Irritational (scratching body).
7. Ocular (rubbing eyes, blinking eyelids, winking).
8. Genital (manipulating genitalia, thigh rubbing).
9. Facial (grimacing, twitching muscles).

#### THE UNIT OF MEASUREMENT

The unit of measurement devised for the study may be defined in general as one manifestation of the designated behavior per stated unit of time. The unit may be illustrated in application to the measurement of nervous habits in the oral category. The oral category includes sucking the thumb or fingers, biting the nails, or protruding the tongue. One such act of behavior in a stated time may be taken as an observational unit of measurement. Preliminary observations were made using a time unit of ten minutes. On the basis of subsequent study a time unit of five minutes was found to yield more reliable results in a given total time of observation. The unit of measurement thus became one oral habit manifested per five-minute period. One observation

<sup>2</sup> The inventory included the following items: twisting hair, grimacing, puckering forehead, raising eyebrows, blinking eyelids, winking, wrinkling nose, trembling nostrils, twitching mouth, displaying teeth, biting lips and other parts, extruding tongue, protruding lower jaw, fingering ear, picking nose, sucking thumb or fingers, biting nails, nodding head, jerking head, shaking head, twisting neck, looking sideways, head rolling, head banging, jerking hands, jerking arms, swinging arms, plucking fingers, writhing fingers, clenching fists, striking head or body, scratching, manipulating genitalia, shrugging shoulders, shaking shoulders, shaking foot, shaking knee, shaking toe, peculiarities of gait, body rocking, body writhing, jumping, hiccupping, coughing, hysterical laughing, grunting, barking, sobbing, sighing, yawning, snuffing, blowing through nostrils, whistling inspiration, exaggerated breathing, belching, sucking or smacking sounds, vomiting, regurgitating, swallowing, spitting and salivation, clearing throat, echolalia, echokinesis, and coprolalia.

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of a group would yield a record for each individual concerning his behavior in that interval. In order to secure a differentiation in terms of amount, however, repeated observations were made. The assumption here is that an individual who manifests a habit in each of a given number of observational periods is more fixed in that mode of behavior than one who gives fewer or no such manifestations. The number of observations which will be used in a given measurement will be dependent upon the behavior to be observed and the reliability sought. The details of the method of using the observational unit of measurement as applied to school and pre-school children will be presented next.

### METHOD

The observer was provided with a seating chart of each room with the name of the child in each seat and squared spaces for making twenty entries below the name. Space was provided on the chart for identifying data such as grade, room number, teacher, and date, and for the time of beginning and ending each of twenty observations. In the observation of kindergarten children a number was pinned on each child and a chart with an appropriate key constructed. In the observation of the pre-school children the numbers were unnecessary since the observer was acquainted with the children by name. An ordinary watch with a minute hand was used for recording time. A clamp-back board served for a writing surface.

The observer took a position at the front and left (pupils' left) of the room. If the room has the proper natural lighting, this position will avoid or minimize the glare of light in the observer's eyes. The unit of measurement was one or more oral habits per five-minute period. Oral habits included thumb sucking, finger sucking, nail biting, and protruding tongue. This means that any penetration of the lips by thumb or finger constituted a manifestation as did any extrusion of the tongue. Putting the pencil in the mouth was not counted unless accompanied by thumb or finger. Although the pencil may be a substitute for the thumb or finger in many cases and pencil biting may be considered in part a nervous phenomenon, the inclusion of such observations would introduce an adventitious circumstance. But one entry was made per child per five-minute period, regardless of the frequency within the period, so that with twenty observations

the possible range of scores is from zero to twenty. Each manifestation was recorded under the appropriate name on the chart and in the square and with a number corresponding to the number of the observation. The time of beginning and ending each observation was recorded.

In the present research all oral observations with the revised technique in the elementary grades were made in the morning at the rate of one room per morning. Observations commenced with the opening of school (9:00 A.M.) and continued for twenty five-minute periods. The observations were made consecutively except where recess or unfavorable observational conditions intervened. Continuous and active use of the pencil or hands under the teacher's direction inhibits the manifestation of the symptoms observed.

Observations during classes in formal penmanship, music, and drill in arithmetic were avoided, also during periods when children were out of their own seats. The observations were made during the month of April. It is not known to what extent seasonal variations may affect the results. Pediatricians report an apparent increase in allied disorders in the spring months.

With the method and under the conditions outlined above the following data were collected.

#### DISTRIBUTION OF ORAL HABITS IN CHILDREN

Observations were made on 467 children in grades one through six in an elementary school in Minneapolis. The range of scores obtained is from zero to twenty with continuous variation between (Table I). The mean manifestation is 10.7 with a standard deviation of 4.6 units. These data indicate that nervous habits are distributed among children in the form of a continuous distribution. Properly stated the question concerning a child is not, "Is he nervous?" but, "How nervous is he?"

The girls average 2.2 higher in oral habits than boys. This difference is about eight times the probable error of the difference and indicates a practical certainty that the difference is a significant one.

It is apparent that the method has some discriminatory capacity. The question naturally arises, "How accurately can the observations be made and what is their significance?"

RELIABILITY <sup>2</sup>

It is apparent that the reliability of the records, as records, will be dependent upon the accuracy of the observer at the time of observation. The most crucial check of the accuracy of one observer's record is to have a second observer make records for the same children at the same time without collaboration with the first. In the preliminary experimentation with the method such observations were made on oral habits for a group of 35 second grade children. The details of the method were explained to the second observer but he did not have previous practice in applying the technique. The two observers took stations at opposite sides of the room. The time for beginning and ending each observation period was indicated on the blackboard. Seven ten-minute observations were made by each observer. The coefficient of correlation between the measures obtained by the two observers for seven periods was .75. This would yield a reliability coefficient of .86 for the fourteen observations by use of the Spearman-Brown formula. It is evident that a fairly reliable record may be made under the conditions of the method.

A second method of obtaining the reliability of the records is to correlate the odd and even records for an observer in securing a score for a given group. The reliability of the total may then be predicted. With this method identical observations are not being compared, however. Fourteen ten-minute observations were made by the writer upon each of two groups of thirty-eight children in the primary grades. The Spearman-Brown formula yielded coefficients of .77 and .80. Similar observations on thirty-one preschool children in the Institute of Child Welfare yielded a reliability coefficient of .93. The greater reliability in these records is probably ascribable to the fact that the observations were made under more constant conditions of time and activity.

Some experimentation was conducted with ten ten-minute observations. Reliability coefficients of  $.69 \pm .06$  and  $.76 \pm .05$  were obtained for two groups of elementary children. Further investigation revealed that twenty five-minute observations were

<sup>2</sup> In the complete study a distinction is made between the reliability of the records and the constancy of the habits measured. The study indicates that the habits have a fair degree of constancy over periods of time varying from eight days to one year.

TABLE I  
DISTRIBUTION OF ORAL SCORES BY SEX IN THE ELEMENTARY SCHOOL

SCORES	BOYS	GIRLS	ALL
20	2		2
19	1	7	8
18	3	10	13
17	3	14	17
16	9	21	30
15	16	15	31
14	13	14	27
13	13	10	23
12	14	29	43
11	14	17	31
10	15	12	27
9	15	21	36
8	13	18	31
7	18	16	34
6	17	14	31
5	11	9	20
4	16	8	24
3	12	6	18
2	10	1	11
1	9		9
0	1		1
N	225	242	467
Md	9.3	12.0	10.7
M	9.5	11.7	10.7
S.D. <sub>dis</sub>	4.67	4.30	4.63
S.D. <sub>M</sub>	.31	.27	.21

superior and this method was finally utilized in the main body of the study.

The unit of measurement with the revised technique was one oral habit manifested per five-minute period. Twenty observations of each group were made consecutively during a single morning in each room. The reliabilities for this method were determined for ages 8, 10, and 12 in the elementary grades. The



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reliabilities for the twenty observations vary between .72 and .94 with .87 the most representative value (Table II). Sex and age differences in reliability seem negligible in the elementary grades. The probable error of an estimate based on ten observations is but 1.7 units.

TABLE II  
SUMMARY OF RELIABILITY COEFFICIENTS FOR ORAL SCORES WITH REVISED TECHNIQUES

	BOYS			GIRLS		
	N	10 OBS.	20 OBS.	N	10 OBS.	20 OBS.
C.A.8 .....	28	.76	.87	35	.57	.72
C.A.10 .....	42	.79	.88	49	.72	.84
C.A.12 .....	43	.71	.83	43	.89	.94

It appears from this portion of the investigation that records of oral habits may be made with considerable accuracy. Practically any stated degree of accuracy may be obtained by multiplying sufficiently the number of observations. Data in the complete report show that reliable observations may also be made of the nasal, hirsutal, ocular, and aural categories. It seems reasonable to suppose that the most valid and reliable measure of nervous habits would be represented by differential measures on each of the categories with subsequent summing into a total. Such a method would require a large expenditure of time and would make studies of large groups a prohibitive undertaking. Is it possible to secure a useful measure of the whole by measuring a single category? Such a possibility is dependent upon the presence of a relationship between the various categories. The evidence for such a procedure will be presented next.

### VALIDITY

In the present study it appears that there are three degrees of validity which may be proposed for the measures. In the first place it may be assumed that the measures are representative and valid measures of the content which determines them. Thus the oral scores may be assumed to be valid measures of oral habits because one oral habit per five-minute period is the unit of measurement. In the second place it may be demonstrated that the single measures have some validity as measures of

nervous habits in general. Justification for this more general validity must come from the intercorrelations which exist among the various groups of habits. Finally, it may be contended that the techniques measure neurotic tendencies in general.

In the present discussion the degree of validity implied in the first assumption will be taken for granted, the degree of validity in the second will be demonstrated, and support for the third will be left to the evidence cited in the clinical literature. The writer does not mean to imply that the third degree of generalization for the measures could not be proved or disproved in a crucial manner. The comparison of a group of diagnosed neurotics and non-neurotics would throw light on this problem. The difficulty of obtaining such groups under comparable conditions would make such a demonstration a major research project in itself and has appeared impracticable in the present study.

TABLE III  
INTERCORRELATIONS BETWEEN VARIOUS MEASURES OF NERVOUS HABITS \*  
(Grade 2A-3B, N = 30)

	ORAL	NASAL	HIRSUTAL	OCULAR	CAPUTAL
Oral .....	.76	.48	.25	.04	.70
Nasal .....	.88	.39	.48	.37	.48
Hirsutal .....	.32	.85	.81	.40	.37
Ocular .....	.06	.71	.54	.69	.54
Caputal .....	.88	.84	.45	.71	.83

\* The coefficients above the heavy lines are the uncorrected values. The coefficients below the line are the values for the coefficients corrected according to the self correlations within the heavy lines.

Data were secured on a combined second and third grade group using ten ten-minute observations for each category. The intercorrelations among the more frequently occurring groups of habits are presented in Table III. The raw coefficients are lower than the true amount of relationship obtaining because of the unreliability of the correlated measures. The values corrected for attenuation have accordingly been included in the table. In general it may be said that a positive and significant relationship exists between the various categories. The uncorrected values vary between .04 and .70 and the corrected values between .06 and .88. The highest intercorrelations are with the caputal cate-

gory since this is a category which involves all of the habits in the remaining categories.

A better type of evidence is offered in the correlations existing between each of the methods and the total of the remaining methods. Each measure is thus being correlated with a criterion of more general significance than obtains with single categories. The correlations of each of the measures with the total of the remaining ones are presented in Table IV. The coefficients vary between .27 and .77. This analysis points to the oral category as being most predictive of the total. It will be noted that the size of the reliability coefficient is related to the number of effective observations as indicated by the mean of the distribution and somewhat related to the variability of the measures as indicated by the standard deviation. No attempt has been made to correct the coefficients for differences in the variability of the measures since such differences are an intrinsic part of the method when constant total time of observation is maintained. The existence of positive intercorrelations between the measures indicates that a score in one category has some validity as a measure of habits in other categories.

TABLE IV  
CORRELATION OF EACH MEASURE OF NERVOUS HABITS WITH THE TOTAL OF THE  
REMAINING MEASURES  
(Grade 2A-3B, N = 30)

HABIT	MEAN 10 OBS.	S.D. DIS.	r WITH REMAINING MEASURES
Oral .....	7.1	2.5	.77
Nasal .....	5.0	2.0	.69
Hirsutal .....	5.6	3.0	.42
Ocular .....	2.9	1.6	.32
Aural .....	1.6	1.6	.27

After a method for obtaining measures of nervous habits had been developed, it became possible to study quantitatively such factors in the genesis of the habits as heredity, imitation, repetition, nutrition, and breast feeding. Tests of tremor, speed of voluntary movement, intelligence, association, and emotional stability were related to the oral scores as a criterion. Since an analysis of the foregoing factors is beyond the scope of the

present report, the interested reader is referred to the complete study for the results.

#### SUMMARY AND CONCLUSIONS

A method of measuring nervous habits has been devised which yields a quantitative score of determinable reliability for each individual. The unit of measurement may be defined in general as one or more specified overt reactions per stated unit of time. The unit used to illustrate the technique was one or more oral habits per five-minute period. Successive observations were made to secure a differentiation in terms of the amount of the habit for each individual on the assumption that a child who shows a given behavior in each of a stated number of successive observations is more fixed in that mode of behavior than a child who gives fewer manifestations or none at all.

The reliability of the method has been studied in application to various groups of habits and to various populations. Oral scores based on twenty observations yield reliability coefficients hovering about .87 for elementary school children. The validity of oral scores as a more general measure of nervous habits is indicated by a coefficient of correlation of .77 with a composite of nasal, hirsutal, ocular, and aural habits.

The data obtained indicate that the amount of nervous habits in a given population takes the form of a continuous distribution. The evidence suggests that the problem of nervous habits is the problem of every child, just as are such matters as weight, height, and educational achievement. The study directs attention to the normality of the habits studied. Too often the attention of teachers and parents is directed to these habits as abnormal phenomena in the absence of a quantitative statement in terms of the general population.

It is believed that the method of measurement developed has possibilities in directions other than that explored in the present report. The unit of measurement is applicable to the study of any observable trait. The length of each observation and the number of repeated observations necessary will vary with the trait to be measured, the frequency of its occurrence, and the reliability of measurement. Certain traits of personality which have been resistant to measurement through the usual test methods may yield to this natural history approach. After the

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observational measure has been developed, a more acceptable criterion may be available for the validation of tests than is usually the case. With variations the technique would seem to be applicable to a wide range of problems such as attention, conduct disorders, leadership, neatness, talkativeness, whispering, and comparative studies of methods of teaching and classroom discipline.

## CHAPTER XV

### DATA ON THE RELIABILITY OF ACTIVITIES ANALYSES OF TEACHING

A. S. BARR

In the materials to follow the writer will discuss, first, the validity, reliability, and objectivity of conventional methods of gathering data about teaching and, secondly, the use of activities analyses of teaching as a means of gathering data.

The writer some years ago in the Detroit Public Schools<sup>1</sup> suggested that the methods of gathering data then in use were not altogether satisfactory. There seemed to be, in the first place, little agreement among supervisors about what constituted good teaching and, in the second place, the means of analyzing teaching used seemed to be subjective.

The situation in classroom supervision is well brought out by some data collected by the writer at a recent meeting of school men. These men were asked to list the specific items of teaching usually observed by them in classroom supervision. One hundred and six supervisors, superintendents, and principals prepared lists of items to observe.

The first thing that strikes one as he examines these lists is the lack of agreement among supervisors<sup>2</sup> as to the important characteristics of teaching. These 106 supervisors supplied 131 different items to observe, 72 of which were mentioned only once. It seems a bit as if each supervisor employed his own system of supervision. This matter is one of some importance, since supervisors occupy positions of authority—hiring, dismissing, and variously advising teachers according to these private systems of supervision. Are these various items important characteristics of good teaching? They seem like so many unvalidated test items, based upon the personal choices of the supervisors

<sup>1</sup> Barr, A. S., and others, *Elementary School Standards for the Improvement of Teaching*. Edwards Bros., Ann Arbor, Michigan, 1924.

<sup>2</sup> The term supervisor is used to include general and special supervisors, principals, and superintendents.

using them. A list of the twenty most frequently mentioned items is given below:

## WHAT SUPERVISORS LOOKED FOR IN CLASSROOM SUPERVISION

	FREQUENCY
1. Pupils' interest in subject .....	30
2. Physical conditions in room .....	24
3. Attitude of pupils .....	18
4. Pupil activity .....	17
5. Definite teacher aim .....	15
6. Responsiveness of pupils .....	15
7. Attitude of teacher .....	14
8. General attitude of teacher and pupils .....	13
9. Atmosphere of classroom .....	12
10. Skill in teaching technique .....	12
11. Evidence of teacher preparation .....	10
12. Method of instruction .....	9
13. Assignment .....	8
14. General appearance of room .....	8
15. Evidence of pupil preparation .....	7
16. Ability of teacher to "put across" .....	7
17. Teacher and pupil coöperation .....	7
18. Work going on .....	7
19. Types of questions asked by teacher .....	6
20. Discipline .....	6

A second characteristic of these items is their subjectivity. Expressions such as "attitude of pupils," "atmosphere of the classroom," "spirit of coöperation," "responsiveness of the class," "teacher's sense of justice," and "move of the recitation," regardless of their importance as proper constituents of teaching, are entirely too subjective to serve adequately the purposes of classroom supervision. No two supervisors, for example, would probably agree upon the amount of attitude possessed by a given class, or the amount of spirit, responsiveness, or move.

The observation of this fact, and the fact that there is little agreement among supervisors as to the characteristics of good teaching, indicates something of the situation which confronts those interested in better classroom supervision.

The seriousness of the present situation in classroom supervision can be more fully realized from a recent study made of the reliability of supervisory observations of the conventional sort. The writer recently secured the assistance of some sixty supervisors in the analysis of two thirty-minute recitations in

arithmetic, one in addition and one in multiplication. The pupils were eight, nine, and ten years of age and represented a typically heterogeneous group. The teacher was a graduate student in the university with two years of teaching experience. Both teacher and pupils were relatively unknown to members of the supervisory groups.

The problem presented to this group of supervisors was one of correctly analyzing a teaching situation about which they had no advance information. Each supervisor was supplied with a form (Form PQ) containing twelve items more or less typical of those used in conventional classroom supervision. These supervisors were directed to study the teacher's work and evaluate her performance for each of the twelve items. The directions to supervisors were as follows:

Observe the work throughout the entire recitation period. Take such notes as you need to take. Fill in the rating scale at the end of the recitation period. In filling in the ratings remember that the teacher's performance may be excellent in one respect and poor in another. She may be skillful in asking questions, for example, but poor in discipline, or vice versa. Remember to use the entire range of the rating scale if necessary. We shall attempt to demonstrate all levels of merit. Fill in the general merit rating at the bottom of the page (sheet).

The important fact to note is that we have here in this experiment sixty supervisors, all observing the same teacher teach at the same time under the same conditions. If supervisors can agree in their analyses of teaching, they should more nearly do so under carefully controlled conditions such as these, where they may observe the same teacher teach the same subject and the same pupils under the same conditions. The results are presented in Table I.

The outstanding fact brought out by these data is that supervisors cannot agree when they are asked to analyze a teaching situation about which they have no advance information and when they use twelve items more or less typical of those used in conventional classroom supervision. While the writer expected that they would not agree, he did not expect such marked disagreement. In fourteen of the twenty-six ratings these supervisors spread their ratings over the entire ten-point scale; in eleven instances their ratings covered nine points, and in only one instance did they show any agreement whatsoever. In rating



**FORM PQ**  
**ITEMS TO OBSERVE**

ITEM	RATING									
	1	2	3	4	5	6	7	8	9	10
1. Attitude of the pupils..										
2. The teacher's aim or objective .....										
3. Teacher's skill in asking questions .....										
4. Evidence of teacher preparation .....										
5. Responsiveness of pupils										
6. Selection and organization of subject matter ..										
7. Provision for individual differences .....										
8. Motivation .....										
9. General appearance of the room .....										
10. Quality of work done ..										
11. Move of the recitation..										
12. Discipline .....										

General Merit Rating (draw a circle around one of the following numbers)

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

motivation, for example, twenty supervisors (second observations) said that the motivation was superior, and twenty-one supervisors said that it was very poor. In general merit thirteen of these supervisors rated this teacher as superior (second observation), but thirteen other supervisors rated this same teacher as very poor. These last named supervisors would doubtless have discharged this teacher at the end of the year if he were employed under their direction; the first thirteen supervisors would doubtless have re-employed the teacher with a promotion and increase in salary. After the demonstration was over, one group of supervisors commented upon the very poor quality of teaching exhibited; in another group a superintendent of schools made the remark that he wished he might employ this teacher for the coming school year. The point is that conventional supervision is highly subjective.

A further study of the reliability of supervisory observations

TABLE I  
A SUMMARY OF THE RATINGS OF SOME SIXTY SUPERVISORS OF TWO THIRTY-MINUTE RECITATIONS IN ARITHMETIC FOR TWELVE ITEMS MORE OR LESS TYPICAL OF THOSE USED IN CONVENTIONAL CLASSROOM SUPERVISION

		SCALE UPON WHICH EACH ITEM WAS RANKED *	
		ATTITUDE OF PUPILS	
		FIRST RECITATION	SECOND RECITATION
		TEACHER'S AIM OR OBJECTIVE	
		FIRST RECITATION	SECOND RECITATION
		TEACHER'S SKILL IN ASKING QUESTIONS	
		FIRST RECITATION	SECOND RECITATION
		EVIDENCE OF TEACHER PREPARATION	
		FIRST RECITATION	SECOND RECITATION
		RESPONSIVENESS OF PUPILS	
		FIRST RECITATION	SECOND RECITATION
		SELECTION AND ORGANIZATION OF SUBJECT MATTER	
		FIRST RECITATION	SECOND RECITATION
		PROVISION FOR INDIVIDUAL DIFFERENCES	
		FIRST RECITATION	SECOND RECITATION
		MOTIVATION	
		FIRST RECITATION	SECOND RECITATION
		GENERAL APPEARANCE OF THE ROOM	
		FIRST RECITATION	SECOND RECITATION
		QUALITY OF THE WORK DONE (PUPIL)	
		FIRST RECITATION	SECOND RECITATION
		MOVE OF THE RECITATION	
		FIRST RECITATION	SECOND RECITATION
		DISCIPLINE	
		FIRST RECITATION	SECOND RECITATION
		GENERAL MERIT	
		FIRST RECITATION	SECOND RECITATION

\* A score of one is excellent and a score of ten is poor. The numbers at the right indicate the frequency with which each item was assigned to each rank.

\*\* Average rating assigned to each item.

A\*\* 1.5 3.9 3.7 3.4 5.6 5.7 4.2 3.4 2.5 3.8 3.2 4.0 2.6 3.8 4.8 5.6 4.9 5.3 4.1 5.3 4.5 5.8 1.7 4.1 5.3

was made by correlation methods. It will be recalled that these sixty supervisors observed the teacher conduct two recitations. Taking the ratings for the two observations as pairs of scores, the coefficients of correlation were calculated for each of the twelve items which composed the recitation score card used in this demonstration.<sup>3</sup> These data are presented in Table II.

TABLE II  
COEFFICIENTS OF CORRELATION FOR PAIRED OBSERVATIONS UPON TWELVE ITEMS  
TYPICAL OF THOSE USED IN CONVENTIONAL CLASSROOM SUPERVISION

ITEMS	R	P E
1. Attitude of the pupils .....	+ .311	.082
2. The teacher's aim or objective .....	+ .342	.078
3. Teacher's skill in asking questions ..	- .156	.085
4. Evidence of teacher preparation ....	+ .347	.077
5. Responsiveness of pupils .....	+ .296	.079
6. Selection and organization of subject matter .....	+ .319	.082
7. Provision for individual differences..	+ .426	.069
8. Motivation .....	+ .443	.074
9. General appearance of the room ....	+ .260	.080
10. Quality of work done .....	+ .234	.081
11. Move of the recitation .....	+ .768	.036
12. Discipline .....	+ .256	.080
13. General merit rating .....	+ .178	.084

The implications of these data may be explained as follows. Let us suppose that a supervisor has time to visit a teacher for thirty minutes. How reliable a measure of the ability of this teacher can the supervisor secure from a thirty-minute observation? The answer to this question is given in the coefficient of correlation reproduced in Table II. With the exception of item No. 2,<sup>4</sup> the coefficients are uniformly low, thus attesting to the low reliability of supervisory observations.

The significance of these data may be more fully understood when the coefficients of correlation are translated into percentages of forecasting efficiency<sup>5</sup> (Table III).

The average coefficient of correlation is approximately .30. A coefficient of correlation of .30 has a forecasting efficiency

<sup>3</sup> Thirteen including the general merit ratings.

<sup>4</sup> This is doubtless a chance correlation.

<sup>5</sup> Hull, Clark L., "The Correlation Coefficient and Its Prognostic Significance," *Journal of Educational Research*, 15: 327-338 (May, 1927).

TABLE III  
RELATION OF COEFFICIENT OF CORRELATION TO THE PER CENT OF FORECASTING  
EFFICIENCY

r	E (per cent)	r	E (per cent)
.10	5	.70	29
.20	2	.80	40
.30	5	.90	56
.40	8	.95	69
.50	13	.98	80
.60	20	1.00	100

of five per cent, which means that if these supervisors had closed their eyes, stopped up their ears, and then had rated these recitations at random upon the twelve items which composed the recitation score card used in this demonstration, their ratings would have been only five per cent poorer than they were when rated according to conventional standards of classroom supervision. These facts are particularly important in any critical study of present-day methods of supervision.

Supervision of the type referred to above is sometimes described as impressionistic supervision. Its conclusions are based upon estimates, guesses, and approximations. The conventional supervisor reaches the conclusion that "the attention is good" from an estimate of the amount of attention, never through an exact recording of the percentage of attention. The conventional supervisor never counts, records time, or attempts to get specific information; he merely guesses at the facts. Thus his supervision is impressionistic.

The writer has suggested on various occasions that supervision might be improved if more attention were given to specific analysis of teaching. Expressions like, "the room is comfortable," "the attitude is good," etc. (expressions characteristic of conventional supervision) are really conclusions or inferences drawn from a study of the observable facts of teaching, namely, conditions and activities. If one would get back to these specific facts of teaching (aside from the very practical returns resulting in the form of more specific supervision), supervision might become more objective than it is as ordinarily performed.

One does not observe directly that the atmosphere of the classroom is good but observes certain specific teacher and pupil

activities from which he concludes that the atmosphere of the classroom is good. This point may also be illustrated by an intangible expression such as "move of the recitation." A supervisor of my acquaintance was recently very much impressed by the "move" of a particular recitation. Now I do not know what "the move of the recitation" meant to her, but it meant to me the rate at which the teacher talked plus the interval elapsing between the teacher's question and the pupil's response, plus the rate at which the pupil talked, plus the interval elapsing between the pupil's response and the teacher's comment, measured against my notion of what constitutes a satisfactory standard of "move." If one cares to analyze such expressions as these, they can be reduced to lower terms which are more objective. The point may be further illustrated by the word "sportsmanship." Now sportsmanship is an inference based upon observable activities. What the observer really does observe is the exchange of greetings between opposing captains, the slugging of one player by another, the assisting of an injured opponent to his feet, etc., from which he concludes that one group of players is more sportsmanlike than another. Most supervisors are wholly unaware of this more detailed aspect of supervision.

The point of view expressed by the writer in the preceding pages is really merely a theory of classroom supervision. If the theory of supervision set forth herein is worthy of support, it must stand the tests of validity, reliability, and objectivity demanded of conventional supervision. This consideration seems to have been overlooked in the proposal of many of the recent so-called objective methods of supervision.

While the activities mode of supervision has not as yet been subjected to a thoroughgoing evaluation, sufficient data are already available to indicate the usefulness of this concept. In a recent study of the teaching performance of good and poor teachers of the social studies in the Junior High School made by the writer,<sup>6</sup> some evidence was collected bearing upon the feasibility of activities analyses as an instrument of classroom supervision.

It seems from these data that there are a number of important

<sup>6</sup>Barr, A. S., "The Teaching Performance of Good and Poor Teachers of the Social Studies in the Junior and Senior High School." *Bureau of Research Bulletin*, Department of Education, University of Wisconsin, 1929.

respects in which good teachers differ from poor teachers and vice versa. While a careful re-study needs to be made of the entire field of activities to discover more exactly than was done in this preliminary investigation which activities contribute most to teaching success, the results secured seem to indicate that the procedure is not without merit. No attempt will be made to report these data at this time.

Two studies<sup>7</sup> were made of the objectivity by which various activities might be observed. Two methods of studying objectivity seemed practicable: (a) The agreement of the observations of many observers using the same check list in observing the *same teacher* teach; (b) the agreement of the observations of a relatively small number of observers using the same check list but observing *many different teachers* teach. The first procedure gives a fairly accurate picture of what a number of observers will do when observing the work of a particular teacher; the second procedure gives a fairly accurate picture of what a particular few observers will do when observing the work of many teachers. Both procedures were followed; data from the second method are given in Table IV (only a few of the items are given).

An activities check list of thirteen pages was used in these studies. The materials presented in Table IV are merely samples from the larger number of items studied. Each pair of observers had one week of training. This training consisted primarily of memorizing the check list, accustoming themselves to tabulating the frequency of occurrences of various items, and in making comparisons of the frequencies secured. In the subsequent collection of data the observers worked independently; that is, there were no day to day comparisons of data. The object of this study was to determine the amount of agreement in the observations of two fairly well trained individuals working independently.

While the two studies are by no means in perfect agreement upon the objectivity of the various items studied, they are sufficiently in accord to indicate approximately the amount of agreement to expect from observation made under the conditions under which these observations were made. The higher coefficients of correlation, pursuant of the hypothesis previously proposed,

<sup>7</sup>Schoonover, A. F., "A Study of the Objectivity of a Teacher's Check List." A. B. Thesis, Department of Education, University of Wisconsin, 1927.

TABLE IV  
COEFFICIENTS OF CORRELATION BETWEEN THE OBSERVATIONS OF TWO  
INDEPENDENT OBSERVERS OBSERVING THE TEACHING OF A  
NUMBER OF DIFFERENT TEACHERS

	COEFFICIENTS OF CORRELATION	
	First Study *	Second Study **
Teacher's use of the word "all right" ..	.92	.94
Gestures .....	.83	.88
Repeats answers .....	.71	.92
Corrects pupil's response .....	.90	.68
Times teacher walks about .....	.58	.94
Laughs with class .....	.70	.56
Use of blackboard .....	.55	.80
Memorized judgments .....	.54	.80
Follows up with more questions .....	.80	.50
Leans on furniture .....	.40	.84
Expository questions .....	.50	.72
Number of fact questions .....	.43	.77
Real judgments .....	.35	.71
Teacher smiles .....	.34	.45
Discipline .....	.78	
Assignment (character of) .....	.67	
Repeat questions .....	.40	
Supplies new information .....	.49	.05
Subject matter humanized .....		.20
Suggests methods of overcoming difficulties .....		.17
Use of pupil's experiences .....		.01

\* Based upon 25 observations.

\*\* Based upon 105 observations.

are found in those data illustrative of specific teacher and pupil activities of the more detailed sort, and the lower correlations are found among general items such as use of pupil experiences, humanized subject matter, character of the assignment, etc. A very interesting fact, beyond the low and high correlations already referred to, brought out by these data is the varying degree of objectivity displayed by so-called objective items to observe. The agreement is, of course, by no means perfect, even with such items as gestures, smiles, laughs, walks, repeats answer, etc. It would seem thus that objectivity depends upon (a) the definition of the thing to be observed; (b) the amount of training of the observers; and (c) the number of items observed simul-

taneously. This last statement is, of course, subject to statistical verification.

Two further studies<sup>\*</sup> were made of the reliability of different numbers of supervisory visits. The items of teaching observed by supervisors in their study of teaching need to have, as has already been pointed out, not only validity and objectivity but reliability. This problem is one of considerable importance to supervisors. How many visits should a supervisor make in order to get a reliable index of teaching efficiency? Or otherwise expressed, is the teacher's performance relatively constant or is it variable? Many supervisors operate upon the assumption that teaching performance is constant. To these supervisors the data gathered in a short ten-minute visit are sufficiently reliable to justify supervisory action. A sampling of the data is presented below.

TABLE V  
THE RELIABILITY OF SUPERVISORY VISITS

ACTIVITY	M <sub>1</sub>	M <sub>2</sub>	AD <sub>1</sub>	AD <sub>2</sub>	V <sub>1</sub>	V <sub>2</sub>
1. Questions from class..	3.05	3.75	2.0	1.29	81.96	42.93
2. Incorrect responses...	...	4.05	...	1.46	...	45.06
3. Repeats answers.....	4.27	7.39	2.4	2.83	70.25	47.86
4. Corrects statements of pupils .....	1.95	4.26	1.25	1.7	80.12	49.88
5. Supplies new information .....	.51	7.58	.53	2.16	129.90	35.62
6. Follows up the pupils' reciting .....	2.12	12.64	1.76	4.61	103.77	45.58
7. Follow up to class....	1.09	7.37	1.04	2.66	119.26	45.73

*Explanatory Statement.* As has already been pointed out the data in this table are taken from two studies. The subscripts indicate the study from which the data are taken, M<sub>1</sub> is the average frequency for each item secured in the first study; M<sub>2</sub> is the average frequency for each item secured in the second study; AD<sub>1</sub> the average deviation for the first study; AD<sub>2</sub> the average deviation for the second study; V<sub>1</sub> the coefficient of variation for the first study; V<sub>2</sub> the coefficient of variation for the second study.

The data presented in Table V are based upon the frequencies secured from five consecutive visits to each of a number of teachers. The average frequency of occurrence for each item

<sup>\*</sup> Sigurdson, Sigurd, "The Reliability of the Activities Check List for the Study and Improvement of Teaching." A. B. Thesis, University of Wisconsin, 1927.

Struck, L. A., "The Reliability of the Activities Check List." M. A. Thesis, University of Wisconsin, 1928.



for five visits for each teacher was first calculated. The data in Table V are the mean performance for seventeen teachers reported in the first study and twenty-one teachers reported in the second study. The average deviations and the coefficients of variations were similarly calculated. The findings of the two studies are not particularly consistent, but one would seem warranted in drawing the conclusion that teaching performance is not constant.<sup>9</sup> Note, for example, the mean and average deviation for "questions from the class," that is, questions asked by pupils. The average deviations are almost as large as the means themselves. Assuming that these data are correct and significant, the variations are exceedingly high. Other items in the table support this general observation. Further study, however, will probably show that certain items are relatively constant and others variable. Sufficient data is not at hand to say at this time how reliable a measure needs to be in order to be acceptable for supervisory purposes.<sup>10</sup>

It has been the purpose of this discussion to do two things: (a) indicate the unsatisfactory character of present supervisory procedures; and (b) propose a solution to the situation. Supervision can be made more objective and more helpful if supervisors are trained in methods of specific supervision. While no systematic evaluation has as yet been made of specific supervision, preliminary studies seem to indicate that it is not without promise.

<sup>9</sup> It should be remembered that these data represent variable scores based upon two factors: (a) the objectivity of the item to observe; and (b) the variability of the teaching performance and not upon the latter alone as assumed in this discussion.

<sup>10</sup> The matter of reliability might also have been studied by correlation methods but the data were not at hand for such a study.

## CHAPTER XVI

### A SUGGESTED TRAINING PROCEDURE FOR INCREASING RELIABILITY OF RATINGS OF TEACHING METHOD AND SKILL

LEO J. BRUECKNER

In the first yearbook<sup>1</sup> of this Conference the writer published abbreviated scales for rating the method and skill of teaching geography. The complete scales consist of four sets of descriptions of nine lessons each in geography, arranged from best to poorest in the order of the degree of skill exhibited by the teacher. This ranking was based on the combined judgments of large numbers of judges, the relative merit of each lesson being determined by a statistical treatment of the judgments made. The complete scales for the four methods—compulsion, preparation, motivation, and purposing—are available in convenient form.<sup>2</sup>

The procedure for using these scales is as follows:

1. The observer of a lesson in geography first determines the general method being used by the teacher on the basis of carefully prepared definitions of each method. Data were presented in the First Yearbook showing that there is a high percentage of agreement among numbers of observers in classifying the procedures as to method.

2. Method having been determined, the observer next rates the lesson as to skill by comparing the quality of the work in the lesson with the various descriptions of lessons in the scale, much as is now done in rating compositions or handwriting. The lesson being observed is given a numerical rating for skill corresponding to the rating given the lesson in the scale which in the judgment of the observer has most nearly the same general characteristics of skill as the lesson being observed. Data were presented in the First Yearbook showing that this procedure resulted in a high

<sup>1</sup> *Educational Supervision*, pp. 176-196. First Yearbook of National Conference on Educational Method, Teachers College, New York, 1928.

<sup>2</sup> Brueckner, Leo J., "Scales for the Rating of Teaching Skill." *University of Minnesota Research Bulletin*, No. 12, February, 1927.

degree of agreement in the ratings of lessons for skill by groups of observers.

As with any tool the successful application of these scales depends on the extent to which the device is understood by the users and the training they have had in its application. The simplest procedure to be used in preparation for the use of these scales in the schools is first to discuss with the group concerned the whole concept of method and skill as outlined in the bulletin containing the scales. The next step is to read the scales carefully to get a clear idea of their structure and some knowledge of their content. The next step is the arrangement of sets of descriptions of lessons in each type according to merit and a comparison of the rankings by each individual with previously determined standards. This procedure requires the analysis of each lesson to determine its merit, thereby giving the individuals a clean-cut picture of the concept of skill as applied to each method. After this activity has been completed the next procedure is to rate standardized descriptions of actual lessons both as to method and skill by means of the scales. The variations from previously determined standard ratings for method and skill will point out those individuals who are accurate in their ratings or those who need further practice with similar descriptions. The final step is the application of the scales to the rating of lessons in the classroom by groups of observers.

The above procedure has been used repeatedly by the writer and has produced excellent results. Below is a typical set of descriptions of lessons that has been used. Four other standardized sets<sup>a</sup> have been prepared.

The standard ratings for these lessons are as follows:

	Lesson 1	2	3	4	5
Method	Motivation	Compulsion	Preparation	Motivation	Purposing
Skill	12.0	16.0	8.5	5.5	19.0

STANDARD DESCRIPTIONS OF LESSONS FOR MEASURING SKILL IN  
TEACHER RATING

Read each lesson carefully. Determine the method used by the teacher. Then evaluate the skill with which method was used.

I A.

On the day before the study of New York was to be taken up in this 7A Geography class, the teacher made an interesting talk about her visit

<sup>a</sup> Unpublished.

to New York City and illustrated her lecture with pictures of New York industries, commerce, and various buildings. The pupils were all interested and enjoyed the talk very much. The next day the teacher asked the pupils how many would like to make a study of New York, and when the class as a whole favored the idea, she gave them as their major problem, "Why is New York our metropolis?" Many of the pupils did not know the meaning of metropolis, and the teacher had not brought in enough material to make the problem clear. The problem was, therefore, too difficult for many of the pupils. The teacher made specific reading assignments in the text and magazines. She asked the pupils to make outlines of their reading and to make scrapbooks of the material selected.

The pupils collected their materials under the direction of the teacher. The outside reading was almost entirely teacher-directed, and the pupils who did not receive help from the teacher relied entirely upon the textbook. This was due to the failure of the teacher to make the pupils sufficiently interested for self-directed reading. The materials for the scrapbooks were studied under the supervision of the teacher, and more time was spent on these than upon the reading and the outline.

The outlines showed an accurate knowledge of the information in the textbook and a fair knowledge of the specific assignments made by the teacher, but showed that little use had been made of additional material. The scrapbooks were fairly well organized when completed and were quite uniform in content for a large class. The lesson was teacher-controlled, and the efforts of the teacher to secure interest gained a friendly co-operation from most of the pupils.

Method..... Skill.....

### *I B.*

At the beginning of the period the teacher, who was a strict disciplinarian, stated the objectives of the lesson clearly and told the class to study carefully the next six pages in their history texts on the colonization of Jamestown. She adapted the assignment to the needs of the pupils, told them that they would be held responsible for all the questions she asked, and suggested a "how-to-study" procedure which they were to use in mastering the exact words of the textbook.

During the recitation the teacher placed a well-organized outline, found in the textbook, upon the blackboard. She started the lesson promptly by asking a number of fact questions and tried to get the pupils to present the exact content of the subject matter as found in the pages that had been assigned. Every pupil had something to say when he was called upon to recite. If the recitation deviated from the text, the teacher would have another pupil point out these errors. The class used the map in the textbook extensively. The teacher required the pupils to pay attention, to sit up, and to apply themselves diligently to the lesson every minute. The class as a whole was interested in the work and required no disciplining. At all times the teacher was fair and impartial to all the pupils, knew every pupil's weakness and success, and set up high standards of achievement. She tried to determine the weaknesses of the individual pupils and

pointed out to different ones their difficulties and various methods of improvement. These suggestions were followed up by prescribed drills.

When the recitation was concluded, the pupils had the contents of the lesson clearly in mind and could answer any question which the teacher could ask without hesitation and in almost the exact words of the text.

Method..... Skill.....

#### *I C.*

The teacher prepared the lesson on the "Early Explorers" from the textbook, but did not do any outside reading. She placed a poorly organized outline on the blackboard, which the pupils were to fill out while reading their text. The outline called for the nationality of the explorers, their purposes in coming, and the hardships they endured.

The recitation did not start promptly, and there was no effort expended by the teacher to connect the present material with the previous lesson. She called on the pupils in a harsh and a somewhat irritable manner. The majority of the questions could be answered by a "Yes" or "No" or suggested the answer. The pupils seemed to be timid and hesitated when they arose to recite. Their responses were incoherent and deviated but slightly from the text. There was little spontaneity. When the pupils did recite they referred to papers upon which were written answers to the questions. The teacher told the pupils several times, at first in a reasonable way but later in a somewhat rude manner, to put away the papers. In most cases, the teacher herself answered the questions in a detailed manner. Much unnecessary disturbance and whispering occurred, and the teacher, who seemed impatient at times, had to stop the recitation to secure order. Nevertheless, the pupils seemed interested, but in a desultory way attended to what she said.

Finally the teacher had one of the pupils summarize the material that had been presented on one man; thus three summaries were given. The class as a whole had a fair knowledge of the lesson.

Method..... Skill.....

#### *I D.*

The teacher told the pupils that they were going to study the Panama Canal Zone and assigned several pages in the textbook and some outside reading. She had brought in a few pictures to arouse interest, but they were very poorly selected and inconspicuously hung in the back of the room. The assignment was stilted, and the attitude of the teacher was compelling rather than appealing, and the pupils therefore showed no interest. The teacher was entirely unprepared. She suggested that scrap books could be made, but said she was so busy that they could not be made now. She finally gave the pupils a ready-made outline from an advanced textbook to guide them in their work, but this was so difficult for the class that it proved to be almost worthless.

Each pupil selected his own topic, and in many cases a better choice might have been made if the teacher had wisely directed the children. Most of the pupils did nothing but read their textbook and the teacher made no attempt to interest them in other material. A few pupils found

some material in the library and elsewhere, but received no aid from the teacher either in the finding or organization of this material. The class selected a chairman as suggested by the teacher, but due to the failure of the teacher to assist at strategic moments, the chairman was unable to conduct the class and the teacher finally had to take complete charge.

The pupils gave their reports under the direction of the teacher, but on account of the low standards set up, a number of the class failed to make any reports. The reports which were presented were given in an indefinite, unorganized, and hazy manner, and showed almost complete dependence upon the textbook rather than upon outside material that could have been selected with the guidance of a skillful teacher. Threats did not bring forth any more effort on the part of the laggards, and the teacher did not know how to make her spasmodic attempts at discipline effective. Under the circumstances, the class gained almost nothing from the discussion. The teacher seemed uninterested and therefore very few of the pupils were interested. The results were practically nil—a few unrelated facts and some disorganized ideas about the Panama Canal Zone.

Method..... Skill.....

#### *I E.*

The class had been discussing rivers for about a week. During this time the teacher brought in many clippings about the Mississippi River and the recent floods. Some report or news about the floods was read to the class every day. Before the end of the week the teacher had brought in a large number of pictures too. Finally, several pupils came to the teacher and asked if they might study the Mississippi River. The teacher said that she would consent if the class could present a plan for carrying on the work. The pupils enthusiastically told the rest of the class, and they immediately elected a committee to work upon a plan.

With the inspiring coöperation of the teacher this committee worked out a complete outline of the project. Some members of the class suggested that the members of this committee should be chairmen of the study committee. The teacher consented, and each of them selected one member of the class until all were chosen. The class elected a president to take charge of the class, and each group began work upon one of the major divisions of the outline as its topic. The teacher took a seat at the back of the room and assisted only when some difficulty arose or when asked for material. All the pupils were interested at all times, worked assiduously, and brought in an abundance of illustrative material.

The president called upon the chairmen and other members of each group to report. Most of these reports were excellent and contained a large amount of detailed and accurate information. There were no disciplinary problems and there was little need for teacher control. The work was well planned and well executed by the pupils. There was no drill, but every child had a thorough knowledge of the important facts and a good mental picture of the Mississippi River system, and the Mississippi River flood regions.

Method..... Skill.....

## CHAPTER XVII

### SURVEY TECHNIQUES FOR THE EXPERIMENTAL DETERMINATION OF THE VALUE OF MATERIALS AND METHODS

PAUL T. RANKIN

The value of a particular material or method of teaching means always its effectiveness for a given purpose *as compared with* that of some other material or method. Accordingly, comparison is the essence of evaluation. When the value of any item, such as a house and lot, is stated as so many dollars, a comparison is implied with the value of other similar items. We have come to think of a value of two hundred thousand dollars for a house and lot as being very great, but only because in our experience most houses and lots have had much lower values.

In educational research the significance of these statements is that we are concerned always with *comparative* values. We never determine the value of a single method but rather compare two or more methods with each other. The technique of the comparison is usually called the controlled experiment.

The controlled experiment is a device for evaluating two or more significantly different factors by comparing their effects upon accepted criteria of judgment, the while holding all other factors constant. For example, the factors to be compared may be two different methods of teaching beginning reading. Several criteria may be used as the bases of comparison of the effects of the two methods: growth in ability to read silently and orally as measured by tests, growth in enjoyment of the reading process, and growth in such character qualities as perseverance, consideration for others, or truthfulness. The other factors to be held constant for the groups compared may be such ones as the initial status in the criterion traits, the skill of the teachers, and the length of time devoted to instruction.

Educational experimentation is becoming more significant each year because of improvements in the procedure followed. The

factors to be compared are more rigorously defined and more surely present; more of the other conditioning factors are controlled or allowed for; the groups which act as subjects are better equated; the effects are more comprehensively measured; the data are more accurately summarized and more helpfully interpreted. Perhaps the point of greatest progress in recent years is in the extension of the ways of describing the conditions and effects to cover the field much more completely than formerly. This yearbook is devoted largely to a statement of such improvements.

The steps<sup>1</sup> in the experimental evaluation of a particular method or piece of material may be listed as follows:

1. The specific statement of the problem.
2. The formulation of the general plan of the experiment.
3. The decision as to the criteria of judgment.
4. The selection of the subjects.
5. The securing of objective records of initial status of the subjects.
6. The objective description of the experimental factors.
7. The securing of objective records of final status of the subjects.
8. The organization and interpretation of the results.

The steps as listed above do not appear to differ from those which are given for any kind of experiment. Indeed scientific method is basically the same in whatever field it is used. The distinction, if there is any, between survey techniques and simple experimentation lies not in the general plan of procedure but rather in the relative place ascribed to individual steps. The survey technique unavoidably entails less certain control of the factors which influence the results, but makes up somewhat for this deficiency by the greater likelihood, due to the large number of subjects, of corroboration if the investigation is repeated.

The procedure in each step will be discussed somewhat and illustrated by reference to a survey of various plans and degrees of individualization now in progress in the Detroit schools.

1. *The specific statement of the problem.*<sup>2</sup> The first step is to

<sup>1</sup> See also McCall, W. A., *How to Experiment in Education*; Crawford, C. C., *The Technique of Research in Education*; Good, Carter, V., *How To Do Research in Education*.

<sup>2</sup> The presupposition is that the problem has already been chosen. It should be said, however, that the selection of which one of many possible problems is to be investigated is probably the most important single task which the investigator must perform.



define as precisely as possible the problem to be investigated. The more specific the statement of the problem, the more probable is its satisfactory solution.

The Detroit individualization experiment grew out of a conflict in views regarding the influence of increased individualization upon the efficiency of the instructional process. Not everyone agrees that individualization has any particular effect; and, of those who do agree, some believe that an increased amount of individualization will increase the efficiency of teaching, and others believe just the opposite. There is little objective evidence in favor of either view. The question whether we should move in the direction of more or of less individualization, and the question what is the merit of particular forms of individual adjustment, such as the Dalton or Winnetka plans, seemed so important and the answers so uncertain that an experiment was decided upon in Detroit.

At this point it may be well to state the meaning of individualization of instruction as the term will be used in this discussion. Individualization does not mean tutorial teaching, the instruction of one pupil at a time. It means rather any and all adjustments in standards, materials, methods, rate of progress, etc., whether administrative or instructional, to the differences which exist among the individual pupils in a class.

To state the problem as the evaluation of individualization is evidently too vague. The problem may be better stated as the comparison of different degrees of individualization with each other and with certain organized patterns of individual adjustment. But even in this statement there is no mention of the type of subjects to be used, or of the criteria by which the results are to be gauged, or of the other factors to be controlled. The problem was finally stated as "the comparison of the effects, in terms of the objectives of the Detroit schools, of much, some, and very little individualization, and of the Dalton and Winnetka plans, upon typical children under regular conditions in average Detroit schools."

2. *The formulation of the general plan of the experiment.* A good plan is well worth the time it takes. Some research workers go so far as to say that half the total time available for an experiment should be spent in planning thoroughly what is to be done in the other half. There is considerable truth in the state-

ment. The great advantage of the planning stage is that many errors and difficulties can be foreseen and avoided if the plan is sufficiently detailed—and the planner is sufficiently discerning.

The planning stage is the stage of choices. Many important decisions affecting the whole significance of the investigation have to be made at this time. First, choice must be made between the extensive, large-scale experiment or survey, and the intensive, small-scale experiment. The present article bears particularly on the former. Of course each type has its own advantages.

Second, choice must be made among the one-group, matched-group, and rotation types<sup>3</sup> of experiments. The one-group type is essentially a method in which one group of children are observed for a period while one experimental factor (perhaps regular conditions) is operating, and then for a second period while another experimental factor (usually some one change in conditions) is operating. The difference in the growths of children in the two periods is a measure of the comparison of one method with the other. The matched-group type is similar, except that instead of studying *one* group during *two* different periods with two different factors, *two* groups are matched as completely as possible, and subjected to the operation of the two different factors during *one* and the same period. The rotation type is a combination of the other two types. When this plan is used, two groups of children are matched and operated under different factors for the first period, and then the two factors are interchanged for the second period. Each of these three types is appropriate for certain experimental situations. In practice, the matched-group method is found most generally useful and therefore is most commonly used.

Third, choice must be made of the general conditions under which the survey is to be conducted. In certain studies it is desirable to have somewhat abnormal conditions such as very dull children, additional teacher service when desired, or changed time allotments. More often the results of the study are of greater value, because susceptible of wider application, if such conditions are kept typical of the whole school system.

Obviously the plan should include definite provision for each of the various stages of the experiment. Many workers find it

<sup>3</sup> See McCall, W. A., *How to Experiment in Education*, for a more detailed account of these various types.

helpful to have two plans: one organized around the steps of the procedure and the other organized in terms of the time sequence.

The Detroit experiment in individualization was set up intentionally as a large-scale experiment of the matched-group type. It was to consist basically of a comparison of five plans: the Dalton, the Winnetka, and three degrees of individualization, called "much individualization," "typical Detroit" (some individualization), and "little individualization" or mass instruction. Two elementary schools were to be run on each of these plans. The schools were to begin on the plan assigned in February, 1928, and run for a semester as a preliminary trial. Measurements were to be made at the beginning and end of the 1928-29 school year, which was to be the period of the experiment proper.

The experiment was set up frankly as a measure of the differences in the effects of the five plans under typical conditions in a large city school system. Existing buildings and equipment were to be used; time allotments were to be adhered to; classes were to be kept at the standard size; there were to be no additional teachers or other special help not feasible in the system as a whole.

The plan of procedure formulated for the Detroit experiment included also a detailed statement on each step. These statements will not be quoted at this point, however, because the substance of them will appear below.

The general time scheme of the experiment is as follows:

- May, 1927: Initiation of project, and preliminary plans.
- September, 1927: Preparation of detailed plans.
- November, 1927: Selection of schools; beginning of special teacher-training program; arrangements for preparation or purchase of needed supplies and equipment.
- February, 1928: Beginning of preliminary trial period of one semester for the five plans; continuation of preparation of special materials, such as lesson sheets, etc.
- March, 1928: Emphasis on teacher-training program, especially through demonstration lessons.
- April, 1928: Detailed planning of the measurement program for the experiment proper.
- July, 1928: Revision and modification, as necessary, of the materials and equipment; preparation of special measuring devices and directions for their use; arrangements for giving and scoring the tests.
- September, 1928: Beginning of experiment proper; inventory measures.

October, 1928: Beginning of detailed record of observations of various types; continuation of teacher-training program.

January, 1929: Midyear measures.

June, 1929: Final measures.

Summer, 1929: Organization and interpretation of results.

Fall, 1929: Analysis of the results with reference to the instructional policy of the Detroit schools.

3. *The decision as to the criteria of judgment.* Everything hangs on the criteria which are adopted. The conclusion in many experiments would be reversed if the basis of judgment were to be changed. For example, reference may be made to a study of the effectiveness of a certain set of drill materials in algebra as compared with "regular" classroom teaching of the subject. The experimenter matched two classes in initial ability and taught one with the drill materials and one without. She planned originally to use only a test of ability with abstract exercises because this was the ability which the drill materials were designed to develop. The experimenter was persuaded, however, to use also a test on word problems where it was necessary to apply one's ability with abstract processes. The results were illuminating. The experimental class had a markedly larger growth in the abstract exercises, but this superiority was just about balanced by the superiority of the control class in concrete problems. Had either test alone been used as the criterion, a clear-cut but false conclusion would have been reached. Since both tests were used, it was necessary to judge which test the more nearly approximated the goals aimed at in that course, and to evaluate the experimental materials in the light of this judgment.

For this reason considerable care in selecting criteria is urged. In many survey comparisons defects have arisen through having the criteria of judgment too narrow and restricted. In educational experiments children may change in many ways and it is desirable that all the changes be appraised. Indeed an ideal set of criteria in any experiment will consist of all the changes which occur in the subjects involved.

It should be said further that it is not sufficient merely to list the criteria. There should be, prior to the final organization of the results, a decision regarding the relative importance attached to these several criteria. The suggestion is offered that this de-

cision be made relatively early in the experiment in order to avoid the rationalizations which too frequently accompany unfavorable results.

It may be objected that there is no need for rating of the criteria because the results of several different measures ought not to be combined. It is true that results analyzed by the separate criteria give helpful diagnostic information concerning the points of superiority and inferiority. But the fact remains that a summary judgment must finally be made. Plan A is better—or worse—than Plan B. If there are many criteria it is to be expected that Plan A will be superior in some respects, Plan B in others. The results in the various criteria have to be combined, and this necessitates some agreed-upon assignment of importance to each criterion.

In the Detroit experiment the criteria which were adopted for each plan were primarily the amount of pupil growth toward the objectives set up for the schools, and secondarily, the cost and ease of administration of the plan. The objectives include skill in the basic tools of reading, writing, arithmetic, and use of the mother tongue. They include also a wide range of attitudes, interests, purposes, powers, and ideals. Tests were available for many of these objectives. Some special tests were prepared for the measurement of others and, in the case of the remainder, the attempt was made to devise more or less objective schemes of observation of children for the purpose of recording significant changes. Before the final measures are obtained, it is hoped to develop a weighting of the various measures so that a single summary judgment may be made, in addition to the judgments on particular traits.

To serve as the second type of criterion, a record is being made also of the differences in cost of materials for the various plans (there are no differences in the cost for personal service by reason of the fact that all the schools are subject to the same standard in this regard). Again rating plans and devices for objective record of observation are being used to appraise the administrative feasibility of each plan.

4. *Selection of the subjects.* The most important point to keep in mind in the choice of subjects is to make sure that the subjects involved in the experiment are really typical of the group to which the resultant generalization is expected to apply. That is,

if the application of the experimental results is to be made to average children in a system, the experiment must not be conducted with children who are selected for their superior mentality. Each group of subjects which is to use a particular plan should be equal to each other group in those characteristics which may affect the changes in children in the directions which are to be measured.

In the Detroit experiment the ten schools included were selected from among the middle third of all the schools in the city when ranked in order of the average intelligence of the pupils in attendance. Each individual school contains children of every level of ability, but every school is approximately equal to every other school in average mentality. Since the majority of the schools in Detroit are sixteen and twenty-four section platoon schools, each pair of experimental schools was made up of one twenty-four-section platoon and one sixteen-section platoon. Since Detroit buildings have a wide range in age, an attempt was made to include both new and old buildings. The twenty-four section schools which were chosen are relatively new buildings constructed within the past eight or ten years. The sixteen-section schools are relatively old buildings built thirty or more years ago. Another consideration in the selection of schools was that of the character of the population. As far as possible, apartment house districts with their attendant high frequency of transfer were avoided, and so were districts which were too heavily of one nationality or group of nationalities.

5. *The securing of objective records of initial status of the subjects.* In most experiments records of initial status are essential, although occasionally it may be permissible to assume the equality of the experimental groups at the outset of the experiment. The ideal at this stage is to secure as comprehensive records as possible. There should be measurement of every factor which influences significantly the growth of pupils in the traits selected as criteria.

The records should be secured so that they are fairly comparable from school to school. Of course, the same tests should be used in all experimental groups. Whenever possible the same examiners should give all tests. The directions for the tests, the materials used, the total situation as regards the children tested should be as nearly constant as may be.

In the Detroit experiment the thirty or forty different tests which were to be used were grouped in sets of three or four, and several examiners were then trained to give each group of tests. Each set of examiners went from school to school on a pre-arranged schedule giving always the same tests. In this way the effect of differences in examiners was minimized. Detailed specific directions were available for all tests and were followed strictly. Provision was made also for a repetition of the most important tests in every building in order to obtain records of the children who were absent on the day when the test was given regularly. The purpose of this procedure, of course, was to secure as large a number of complete records as possible. The standard tests were to be supplemented by more or less objective evaluations of those changes produced in children which are not satisfactorily measured at present by standard tests.

6. *The objective description of the various experimental factors.* After the inventory tests have been given and the experimental procedures have gone into operation, it is then necessary to have some precise statement of the degree to which the experimental factors really are operating. It might be possible, for example, in an experiment for the evaluation of phonic methods to have little or no real difference between the so-called phonic method and the so-called controlled or regular method. An outsider observing the two classes might be uncertain which was the "phonic" class. The need for accurate description of procedure is especially marked in the control groups. Very frequently experimenters have described in detail the new procedure which they are trying out but say nothing about the control procedure except that it is the "typical" or "regular" classroom organization or method.

Not only is it desirable to have the differences in the experimental factors pointed out and described, but also it is desirable to have a judgment, before the experiment is concluded, as to the extent to which each method approximates the ideal set up for that particular method. Again referring to a possible comparison of phonic with non-phonic methods, the phonic method should be used in such a way and to such an extent that a proponent of phonic method would be satisfied with the method as used. Similarly a proponent of the non-phonic method of teaching reading should be satisfied that the non-phonic method which is



being used is being handled satisfactorily. Practically this step is handled best by securing from supporters of each method an objective definition and specifications of the proper use of that method, and by then having impartial observers judge, with the aid of these specifications, how well the method is being used.

Objective description of the methods used and of the merit of their use is not easy. The suggestions in other chapters in this volume will be helpful in this connection. The general procedure necessary is to devise ways of guiding observations so that the record of the observation will be reasonably comparable and objective.

In the Detroit experiment several devices are being used to discover (1) the degree to which the actual classroom procedures in one plan differ from those in every other plan, and (2) the degree to which each plan approximates the ideal of its supporters. The devices are principally guides for securing objective records of observation. They are intended for use by a number of disinterested but competent school people.

7. *The securing of objective records of final status of the subjects.* At the conclusion of the experimental period records should be secured similar to those obtained at the outset of the survey. Ordinarily these records consist largely of the results secured on equivalent forms of the tests used at the beginning. But they will include also such other estimates of the changes made in children as it may be possible to obtain.

As complete final records as possible are to be secured in the Detroit experiment. In addition there will be some mid-year tests, partly to have a check on the stage at which differences in the methods are found, and partly because some of the tests cover specifically only a single term's work.

8. *The organization and interpretation of the results.* When the final measures have been secured there is the task of arranging the data to discover and interpret such differences as may exist. The several phases of the process may be listed as (1) the decision as to the various groupings for which the results are to be expressed separately, *e.g.*, grade and ability level; (2) the matching of individual pupils and groups of pupils in the various experimental plans; (3) the computation of growths of the matched groups, the arrangements of these figures in distributions, and the summarizing of these distributions by measures of



central tendency and of dispersion; (4) the computation of the differences among the various experimental plans, and the expression of these differences in a variety of forms to facilitate full comprehension of their meaning; (5) the combination of the differences obtained in the different criteria into summary figures based on previously adopted weightings of the criteria.

These phases are planned for in the Detroit experiment as follows:

1. The results are to be expressed separately for each grade and native ability group but not for each age, nationality, home language, etc. For example, dull children in the fourth grade may be found to develop more with the Dalton plan than with the Winnetka plan.

2. The children are to be matched so that any group of a given grade and ability group is substantially equivalent to the four groups matched with it on the other four plans. In general, all of the five groups in any set to be compared will have the same distribution in grade, native ability, age, home language, and score on inventory measures.

3. The gains from initial to final measures will be computed and summarized for each set of five matched groups of a given grade and native ability.

4. The differences in gains among the five plans of individualization will be computed separately for each measure. The differences will then be expressed in relation to the probable error of the difference between the gains, in relation to the standard deviation of the gains, in relation to the inter-grade differences, and in such other ways as may aid in interpretation.

5. The differences on the various measures, such as on particular reading or cheating tests, will be consolidated into summary measures in accordance with the adopted plan of weighting the importance of the different measures.

#### BACKWARD PLANNING

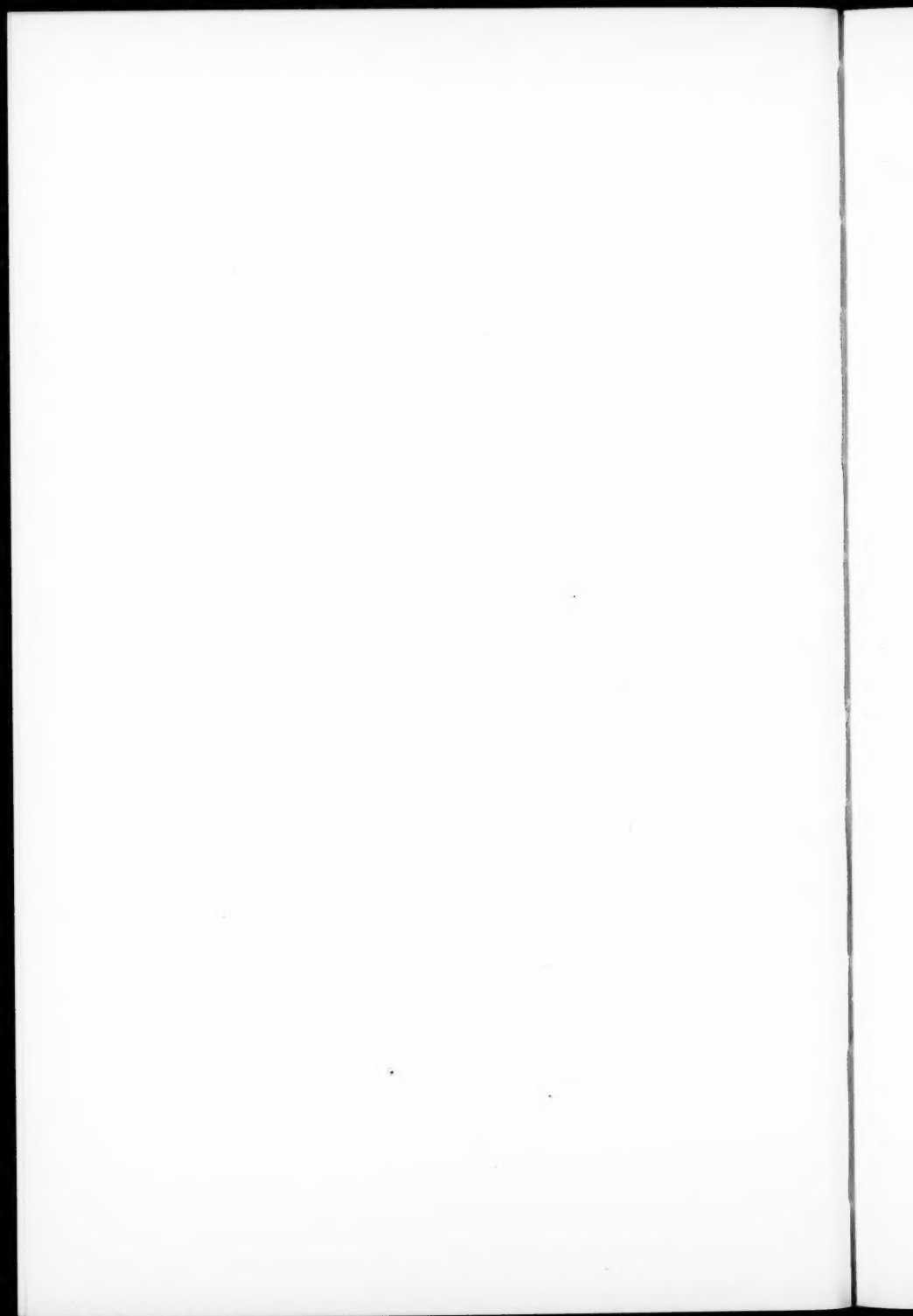
Probably the most helpful suggestion which can be offered about the general conduct of the whole survey is that the surveyor keep the end constantly in mind from the beginning. Every decision is to be governed by the form of the end-products desired. That is, the experimenter really works backwards in all his planning. He formulates first all the possible conclusions from

his study, then decides what evidence would be necessary for a decision among these possible conclusions, then proceeds to organize the study to secure the necessary evidence, on the basis of which he can select and defend the true conclusion.

#### EFFECTIVE USE OF THE RESULTS

For the progressive schoolman the completion of the survey to the stage of conclusions is not the end. He must go further by examining his former modes of action to discover in what way they are affected by the conclusions reached. If he is sincere, he will then do his utmost to make such modifications in the organization, administration, or instruction of his school system as seem warranted by the results of the study. Only in the event of such an outcome in action can the large-scale investigation be justified. In point of fact, extensive surveys of classroom instruction have already been of great value in particular communities, and are destined for even greater usefulness in the future.

**SECTION SIX**  
**TECHNIQUES FOR SECURING TEACHER**  
**PARTICIPATION IN THE STUDY OF**  
**EDUCATIONAL PROBLEMS**



## CHAPTER XVIII

### TEACHER EVALUATION OF SUPERVISORY PROCEDURE

ERNEST O. MELBY

As school supervision has extended its scope, it has come to employ a considerable variety of activities and devices. Little, however, is known either concerning the merits of the various procedures or regarding the extent to which they are used. There is likewise little agreement regarding practice in the administration of any activity. For example, there are those who hold that the supervisor should visit only when invited by the teacher. Others believe that visits should be made unannounced at the discretion of the supervisor. There is probably little evidence as to the relative merits of the two procedures. Occasionally in the literature on supervision titles appear which imply that supervision is not well received by teachers. "Snupervision" and "Taking the Shun out of Supervision" are examples. Since the purpose of supervision is the improvement of teaching, it would seem to be of interest to know how supervision as it is now being carried on appears to the teachers supervised. It seems possible that the activities of any given supervisor may appear differently to the teachers supervised than to the supervisor himself. It is the purpose of this study to describe the judgments of a given group of elementary and high school teachers regarding supervisory practice in their school systems and to compare practices followed with the teachers' judgment of the value of the various activities and devices used.

#### THE PROCEDURE

In all more than 100 articles and books on supervision were examined in preparing the inventory of activities and devices. All activities and devices mentioned were listed and later organized under five headings as shown in Table I.<sup>1</sup>

<sup>1</sup>Many helpful suggestions were made throughout the study by Dr. L. J. Brueckner, Dr. Fred Engelhardt, and Dr. L. V. Koos of the College of Education, University of Minnesota.

It was next proposed to arrange the inventory in such a way that the teachers to whom it was submitted might check it to indicate the extent to which each of the various devices or activities was being used in their school system. Accordingly, the inventory was prepared with three columns following the items headed "Much used," "Used some," "Not used." In this form it was submitted to 25 Minneapolis and St. Paul principals and 25 superintendents of small school systems in Minnesota. These principals and superintendents were also invited to offer suggestions for the improvement of the check list. After the returns of the preliminary study had been summarized, a column headed "Used very little" was added. It was believed that the four-column scheme would tend to make teachers more cautious about checking activities in the "Much used" column.

Since it was desired to compare existing practice in the use of the activities with the judgments of teachers regarding the value of the activities, the inventory containing exactly the same items was prepared in another form with four columns headed "Of great value," "Of some value," "Of little or no value," and "Undesirable, should not be used." It was planned to submit both forms to teachers. It had been suggested that teachers' judgments regarding the value of an activity might be influenced by the extent of its use in their school systems. It was therefore decided to submit the two forms separately.

Permission was secured to visit ten Minnesota school systems in cities ranging in size from 10,000 to 20,000 population.<sup>2</sup> Where possible the forms were distributed to teachers in meeting and filled out after explanations had been given both orally and in writing. The forms describing practice were distributed first. After they had been checked, they were collected and the forms describing judgments of value were distributed. The written instructions provided with the two forms are here shown. In each case the completed papers were collected by the writer, and the teachers were assured that under no circumstances would replies be shown to any administrator or supervisor in the system.

Because of conflicting affairs five of the ten school systems visited were unable to call teachers' meetings for the purpose of filling out the forms. In these cities the forms were left with the

<sup>2</sup> Albert Lea, Austin, Faribault, Mankato, Owatonna, Rochester, Red Wing, St. Cloud, South St. Paul, and Winona.

superintendents to be distributed and filled out by the teachers at their leisure. Since the questionnaires in these systems were returned to the writer by express through the superintendent's office, it was thought worth while to tabulate these separately. In the event that teachers would be influenced in their reactions by the possibility that their replies might be examined by a supervisory officer, this fact might be revealed by a separate tabulation and comparison with the returns from the five cities where the papers were filled out in a meeting and immediately collected by the writer. A separate tabulation showed no significant differences. It is of course possible that conditions in the two groups of cities may be greatly different. There is, however, no reason for assuming that that is true.

INSTRUCTIONS GIVEN TO TEACHERS FOR CHECKING INVENTORY OF  
SUPERVISORY PRACTICES

To Teachers:

On the accompanying pages are listed a number of supervisory activities and devices. Kindly place a check mark (✓) after each activity or device in the column which best describes the extent to which the activity or device is used in your school system in the supervision of the regular subjects, such as arithmetic, history, mathematics, etc. Do not consider special subjects such as art, music, etc. If a device or activity is not used in your school system, be sure to place a check in the column headed "Not used." Check after every item in one of the four columns provided. Leave no blanks. Probably no system uses all or even a large number of these activities. It may be that some of the best school systems use or emphasize only a few. Neither does anyone know which of these activities are most helpful or effective. Be sure to check the form according to the practice in your system and not according to your judgment of the value of the activities.

SAMPLE CHECKING SCHEME

I. Fact-finding activities and devices. Check (✓) in proper column.	PRACTICE IN YOUR SYSTEM			
	MUCH USED EMPHASIZED	USED SOME	USED VERY LITTLE	NOT USED
A. Classroom visitation .....				
1. Announced visits .....				
<i>(i.e., teachers are informed         they will be visited at         definite time)</i>				
2. Unannounced visits .....				

INSTRUCTIONS GIVEN TO TEACHERS FOR CHECKING INVENTORY OF SUPERVISORY  
ACTIVITIES AND DEVICES TO EXPRESS THEIR JUDGMENTS REGARDING  
THE VALUE OF VARIOUS ACTIVITIES AND DEVICES

To Teachers:

It is believed that a study of teachers' judgments concerning the value of the various supervisory activities and devices would yield very significant results. It may be that supervisors do not always employ the devices which teachers feel are most helpful. An activity which appears very desirable from the supervisor's viewpoint may not be particularly helpful to teachers.

On the accompanying pages are listed a number of supervisory activities and devices. Kindly place a check mark (✓) opposite each item in the column which best expresses your judgment of the value of the activity or device. Be sure to check every item. In case you have had no opportunity to judge the value of an activity, do not leave a blank, but place a question mark after it. Be sure to indicate your judgment of the value of the activity rather than the extent to which it is used in your system.

SAMPLE CHECKING SCHEME

I. Fact-finding activities and devices. Check (✓) in proper column.	YOUR JUDGMENT			
	OF GREAT VALUE	SOME VALUE	LITTLE OR NO VALUE	UNDESIRABLE —SHOULD NOT BE USED
A. Classroom visitation .....				
1. Announced visits .....				
(i.e., teachers are informed they will be visited at definite time)				
2. Unannounced visits .....				

Teachers were invited to make comments in connection with every major item in the inventory by providing blank spaces headed "Others, name them." Only occasionally were comments made which were negative criticisms of practices followed in the system in which the teacher was employed. Remarks of this type seemed just as frequent in the cities distributing the forms through the superintendent's office as in those cities where check lists were filled out in teachers' meeting and immediately collected. There seemed to be no indication that teachers in these cities had any fear of expressing themselves either in regard to supervisory practices followed or about their judgments of the merits of the procedures followed.

Teachers were also asked to describe various practices in the



organization and administration of supervision which were followed in the system. Advantage was taken of the first-hand visits to these school systems for the purpose of interviewing supervisors and teachers in regard to practices followed. These data were employed in another aspect of the study dealing largely with matters of supervisory organization and administration.

#### DATA INCLUDED

Replies were received from 377 elementary school teachers and 334 high school teachers. The vast majority of the check lists were carefully filled out. It was assumed that some of the activities, at least, would be unfamiliar to the teachers. Teachers were therefore asked to place a question mark after all items concerning which they were uncertain either as to value or as to extent of use. While some question marks were used, the more common practice seemed to be that of leaving blank spaces. Those activities which were checked as "much used" by large percentages of the teachers were left blank by only a few teachers, while those activities which seemed to be little used were more frequently left unchecked. Similar conditions prevailed in regard to judgments of the value of the various devices. Activities judged to be of "great value" by large numbers of teachers were seldom left unchecked while those given less general approval were more frequently left blank. It would seem therefore that the number of teachers failing to check an item is somewhat of an index of its unfamiliarity or lack of use in a school system.

#### INTERPRETING THE REPLIES

Several procedures for weighting the replies were considered. It was found, however, that the percentage of teachers checking the columns "Much used" and "Of great value" seemed to give practically the same results as a weighting of all four columns. It is believed that the percentage of teachers checking an activity in the "Much used" column is a measure of the extent to which that particular activity is receiving emphasis in the school system.<sup>3</sup> Likewise it is felt that the number of teachers checking

<sup>3</sup>A more complete discussion of weighting procedures is given in Melby, E. O., "The Organization and Administration of Supervision in Cities having Populations of 10,000 to 20,000." Unpublished manuscript, University of Minnesota Library. The advice of Dr. M. J. Van Wagenen and Dr. Willard C. Olson of the Department of Educational Psychology of the University of Minnesota in connection with this part of the study is greatly appreciated.

in the column "Of great value" is a measure of the extent to which teachers show approval for any particular activity or device. For this reason only the per cents in the "Much used" and "Of great value" columns are given in Table I.

It is not believed that exact rank orders of the various activities and devices are significant. It is entirely possible that in quantitative terms "much used" in one system may be something very different from what it is in some other school systems. The results probably indicate the relative degree of emphasis which the activities are receiving. To whatever extent there is supervision in these systems the results probably indicate what that supervision is as it appears to the teachers supervised.

TABLE I  
COMPARING THE JUDGMENTS OF TEACHERS AND SUPERVISORS CONCERNING  
THE EXTENT OF USE AND VALUE OF CERTAIN SUPERVISORY  
ACTIVITIES AND DEVICES \*

	1	2	3	4	5	6	7	8	9
I. Fact-finding activities and devices. Check (✓) in proper column.									
A. Classroom visitation .....	..	..	..	..	..	..	..	..	..
1. Announced visits (i.e., teachers are informed they will be visited at definite time) .....	2	0	7	7	16	9	17	6	42
2. Unannounced visits (teachers not informed of visits) .....	63	29	71	58	32	29	69	51	44
3. Long visits (whole period or greater part of period) .....	37	13	40	15	26	21	67	51	60
4. Short visits (small part of period) Others (name them) .....	30	9	31	35	31	23	23	21	2
5. ....	..	..	..	..	..	..	..	..	..
6. ....	..	..	..	..	..	..	..	..	..
B. Tests and measurements .....	..	..	..	..	..	..	..	..	..
1. Standard achievement tests ...	11	12	25	37	51	43	58	41	76

\* Summarized from replies of 377 elementary school teachers, 334 high school teachers, 150 elementary principals, 80 high school principals and 56 specialists in educational administration and supervision.

Column	1	Per cent	of high school	principals	checking item	"much used."
" 2	"	"	"	teachers	"	"
" 3	"	"	"	principals	"	"
" 4	"	"	elementary	teachers	"	"
" 5	"	"	elementary	teachers	"	"
" 6	"	"	high school	teachers	"	"
" 7	"	"	elementary	principals	"	"
" 8	"	"	high school	principals	"	"
" 9	"	"	specialists	"	"	"

TABLE I—Continued

	1	2	3	4	5	6	7	8	9
2. Intelligence tests .....									
3. Informal tests (prepared by teachers) .....	37	41	49	49	55	41	50	37	42
4. Diagnostic tests .....	6	6	20	22	45	34	64	34	90
Others (name them) .....	..	..	..	..	..	..	..	..	..
5. ....	22	20	21	37	55	38	53	34	52
C. Teachers' reports .....	..	..	..	..	..	..	..	..	..
1. Time allotment reports .....	6	13	23	29	24	8	24	10	10
2. Reporting methods used .....	15	9	11	14	20	7	17	20	14
3. Reports of objectives of lessons .....	24	16	17	21	28	19	33	28	38
4. Materials used .....	12	12	19	19	21	12	18	15	14
5. Reports of lesson plans .....	21	34	49	51	32	22	48	23	16
Others (name them) .....	..	..	..	..	..	..	..	..	..
6. ....	..	..	..	..	..	..	..	..	..
D. Others (name them) .....	..	..	..	..	..	..	..	..	..
II. Fact presentation activities and devices									
A. Teachers' meetings for announcements (do not confuse with III.A) .....	9	10	16	26	17	9	6	11	4
B. Bulletins .....	..	..	..	..	..	..	..	..	..
1. Mimeographed .....	59	63	27	59	59	31	63	46	..
2. Printed .....	4	4	6	12	38	17	15	14	30
3. Bulletin boards .....	40	43	40	19	43	42	42	39	34
4. Daily or weekly letters .....	16	16	8	11	21	15	11	17	30
5. Graphs of test results .....	12	11	21	23	45	29	42	26	70
Others (name them) .....	..	..	..	..	..	..	..	..	..
6. ....	..	..	..	..	..	..	..	..	..
III. Activities and devices for stimulating growth and improvement									
A. Teachers' meetings .....	..	..	..	..	..	..	..	..	..
1. General (including entire faculty) .....	42	15	42	11	17	17	51	44	32
2. Meetings of teachers of certain subjects or grades .....	40	13	36	30	71	60	63	63	81
3. Committees for special studies .....	22	8	17	13	43	39	40	53	88
Others (name them) .....	..	..	..	..	..	..	..	..	..
4. ....	..	..	..	..	..	..	..	..	..
B. Demonstration teaching .....	..	..	..	..	..	..	..	..	..
1. Of proposed methods .....	..	3	5	12	64	32	28	21	76
2. For training new teachers .....	2	4	10	7	45	32	38	29	80

[illegible]

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[illegible]

TABLE I—*Continued*

	1	2	3	4	5	6	7	8	9
A. By changes in pupils .....	..	..	..	..	..	..	..	..	..
1. As measured by standard tests.	17	13	32	33	42	32	56	37	66
2. Observed improvement in pupil attitudes .....	41	18	46	31	54	41	58	59	58
Others (name them)									
3. ....	..	..	..	..	..	..	..	..	..
B. By changes in the teacher or her teaching .....	..	..	..	..	..	..	..	..	..
1. Teacher's attitude toward supervision .....	22	10	37	26	46	34	45	35	48
2. Observed changes in teacher's methods .....	26	8	38	23	45	29	56	48	36
Others (name them)									
3. ....	..	..	..	..	..	..	..	..	..

## PRACTICE IN FACT-FINDING ACTIVITIES AND DEVICES

Judged by the replies of the 377 elementary school teachers, unannounced visits seem to be the most used supervisory device in these systems. Table I, column 4, gives the per cents of elementary teachers checking each item as "much used." Column 2 gives similar figures for high school teachers. The next items in order of rank are reports of lesson plans and informal tests. In fact the percentages in the list of fact-finding activities are higher than those in the remaining groups of activities. Visitation is evidently used much less in high schools than in elementary schools, exactly twice as many elementary as high school teachers checking the activity as "much used" (Table I, column 2). At the same time most of the percentages for high school teachers are smaller than for elementary school teachers. One possible interpretation of this situation is that in general there may be less supervision in high school. Short visits seem to receive considerable emphasis in elementary schools but little in high schools. Tests likewise receive more emphasis in the elementary schools; particularly is this true of diagnostic tests.

If it is desired to secure information concerning the work of teachers, one may go to the classrooms to observe, one may give tests to measure pupil growth, or one may ask teachers to report what they do. Teachers' reports come under the last category.

It seems likely that as yet these are little used and little understood. Almost invariably when the forms were filled out in teachers' meetings there were frequent calls for explanations of these items. Some teachers wrote comments on the forms to the effect that teachers cannot be expected to report reliably concerning their own work.

#### FACT-PRESENTATION ACTIVITIES AND DEVICES

Mimeographed bulletins seemed to be the most used fact-presentation devices. Bulletin boards seem more used in high schools than in elementary schools.

#### ACTIVITIES AND DEVICES FOR STIMULATING GROWTH AND IMPROVEMENT

By comparison with the fact-finding activities the activities for stimulating growth and improvement seem little used. Only slight differences are found between elementary and high schools in this respect. Most of these activities are characterized by large percentages in the "Not used" column. Demonstration teaching, intervisitation, lectures and reports, conferences, experimentation and self-evaluation by teachers, all receive slight emphasis. In spite of the importance attached to conferences following visitation in the literature on supervision, such conferences are reported as "much used" by only 20 per cent of elementary school teachers and only 12 per cent of high school teachers. The percentage of teachers checking the various activities in this section of the inventory in the "Not used" column ranges from 4 for teachers' meetings to 54 for intervisitation and 63 for "Organizing reading circles."

#### ACTIVITIES AND DEVICES FOR THE TRAINING OF TEACHERS AND THE IMPROVEMENT OF INSTRUCTION

In general the activities under this heading seem to receive little emphasis. Training activities listed in this inventory seem to receive emphasis not much greater than that given in general to activities designed to stimulate growth and improvement. Differences between practices as indicated by elementary school and high school teachers seem only slight.

## PROCEDURES FOR EVALUATING THE RESULTS OF SUPERVISION

It seems likely that these activities were little understood by teachers. The number of questions asked in teachers' meetings would indicate that the whole problem of the evaluation of supervisory effort is rather unfamiliar to teachers. It is possible that teachers may feel that this is a matter of immediate concern only to supervisory officers.

## SUPERVISORY PRACTICE IN GENERAL

If the teachers here consulted have correctly appraised supervisory practice in these ten school systems, such supervision as is provided consists largely of short, unannounced visits, mimeographed bulletins, informal tests, and teachers' meetings. Other activities are evidently used, but in the minds of most of the teachers they do not stand out as being "much emphasized." At the same time existing supervision in these school systems seems to be largely a fact-finding procedure. Some may choose to call it inspectorial.

It is of course not known to what extent the practices in these systems, as described by the teachers supervised, agrees with the general practice in cities of this size throughout the country. It was not possible to secure the reactions of the teaching groups from a widely distributed group of cities. However, 150 elementary school principals and 80 high school principals in 120 cities of 10,000 to 20,000 population, scattered throughout the country, described their supervisory practice on the same check list used by the teachers. The reactions of these principals are shown in Table I covering both their practices and their judgments in regard to the value of the activities and devices.

By examining columns 1 and 2 of Table I, one can compare the practices of the high school principals as described by the principals themselves with the practices of high school principals in the ten Minnesota cities as described by the teachers in these cities. Likewise, by examining columns 3 and 4 in the same table, supervisory practices in elementary schools as described by the 150 principals themselves may be compared with the practices in elementary schools in the ten Minnesota cities as indicated by the teachers in these cities.

While slight differences are of course shown between the prac-



tices in the 10 Minnesota school systems as described by the teachers supervised and the practices of principals in the 120 cities as described by the principals themselves, yet the results suggest that conditions obtaining in the Minnesota cities are not greatly different from those generally found in cities of this size.

#### JUDGMENTS OF VALUE

Column 4 in Table I gives the percentages of elementary school teachers who indicate that the various items are "much used or emphasized." Column 5 in the same table gives the percentages of elementary school teachers who checked the items as having "great value." By comparing these two columns it is possible to see the relation between supervisory practice as viewed by the teachers supervised and the value which these same teachers assign to the various devices. Thus, while 58 per cent of the elementary teachers checked "unannounced visits" as being "much used," only 32 per cent regarded such visits as having "great value." For the sake of simplicity, comparative figures are given in Table II for major headings only. In this table the percentages given are those for specific activities given highest rank by teachers. For example, under teachers' meetings the item "meetings of teachers of certain grades or subjects" received highest rank. Accordingly, the percentage of teachers ranking such meetings of great value is the figure given in Table II opposite the item "teachers' meetings." While 71 per cent of the elementary teachers believe such meetings to be "of great value," only 30 per cent say they are "much used."

Demonstration teaching, maintenance of a professional library, conferences, and many other activities receive high rank in value in the judgment of teachers but according to these same teachers they are little used. In Table II the rank orders of the items are given. The correlation between "practice" and "value" is .21 (Spearman Rank Difference). While the correlation has no special significance, examination of the data presented suggests that we are not doing in supervision what teachers would have us do.

One way to describe the situation might be to say that much is done to find out how the teacher is teaching but little is done to help her improve. According to the judgments of the teachers included in this study, it is the activities designed to stimulate professional growth and improve teaching which interest teachers

TABLE II  
COMPARING THE JUDGMENTS OF 377 ELEMENTARY SCHOOL TEACHERS  
CONCERNING THE VALUE AND EXTENT OF USE OF CERTAIN  
SUPERVISORY ACTIVITIES AND DEVICES

ACTIVITY OR DEVICE	OF GREAT VALUE		MUCH USED	
	Per Cent	Rank Order	Per Cent	Rank Order
1. Fact-finding				
1. Visitation (unannounced) .....	32	16	58	2
2. Tests (informal) .....	55	9	49	3
3. Teachers' reports (lesson plans)	51	10	32	5
2. Fact-presentation				
1. Teachers' meetings .....	17	16	25	8
2. Bulletins .....	59	7	59	1
3. Stimulating growth				
1. Teachers' meetings (by grades or subjects) .....	71	1	37	4
2. Demonstration teaching .....	64	5	12	15
3. Professional library .....	65	4	23	10
4. Conferences following visitation	67	2	19	13
5. Experimentation in method ...	37	14	17	14
6. Self-evaluation by type lessons.	40	13	20	12
7. Inter-visitation .....	16	17	8	17
8. Lectures by supervisor .....	40	12	11	16
4. Training teachers and improving instruction				
1. Maintain office hours .....	56	8	21	11
2. Coöperative studies .....	48	11	24	9
3. Individual studies .....	66	3	27	6
4. University courses .....	60	6	26	7

most. It is also evident that these are the activities which receive least emphasis.

#### THE JUDGMENTS OF SPECIALISTS

The inventory of supervisory activities and devices employed in this study was also submitted to 100 specialists in school administration and supervision. Replies were received from 56. The percentage of specialists checking the various activities as "of great value" is shown in column 9 of Table I. It seems that there is more agreement between the judgments of teachers and the judgments of specialists than between the judgments of

teachers and the practice of supervisors. It seems, therefore, that if teachers and specialists have correctly evaluated the various activities and devices, present practice does not proceed upon the most desirable basis.

#### ATTITUDES TOWARD SUPERVISION

If teachers are antagonistic toward supervision, that fact is not revealed in the present study. There seems to be no reason for believing that teachers would hesitate to classify any activity as "undesirable" if they believed it belonged in that category. There was, however, no tendency to check many activities in the "Undesirable, should not be used" column. Only five activities were checked in that column by as many as ten per cent of the teachers. On an average less than four per cent of the teachers checked the various activities as undesirable. On the contrary large numbers of the devices seem well approved by the teaching groups. Of the total of 65 items in the inventory, 35 are said to be "of great value" by 40 per cent or more of the teachers. While present practice as described by the teaching groups in these ten Minnesota school systems may leave much room for modification, there is still much in the results of the inventory which is encouraging to supervisors. It seems that supervisors have available a considerable number of devices and activities toward which teachers are well disposed. No doubt these devices can be improved in practice.

## CHAPTER XIX

### COOPERATIVE SUPERVISION IN LOS ANGELES

FRANCES R. DEARBORN

The assistance which many of the teachers of Los Angeles<sup>1</sup> are giving in working out lessons and materials for the betterment of instruction is invaluable. Three different types of co-operative activities as carried out by supervisor and teachers will be described in this article. While these were worked out according to no highly technical procedure, yet the results were successful and had their influence.

The first type of activity shows how one teacher<sup>2</sup> and her pupils studied a problem in citizenship and made a solution which brought benefit to other teachers and their pupils. This teacher, to clarify some of the abstract qualities in citizenship that must be rated on the report card, used a set of true stories which had been sent out by the Course of Study Department. The stories illustrated certain conduct traits and purposed to make these concrete and real. After the teacher had used the stories and found her pupils interested in carrying the application into their own experiences, she suggested that because they were sixth grade children, they should be able to render valuable assistance in making the citizenship traits of the report card clear to younger children. She further asked her pupils if any of them knew of some experiences which they themselves had had, and which could be worked into a story of simple vocabulary for a third or fourth grade child to read. After some discussion it was agreed that each child should try to record a helpful experience which could be read and judged by the rest of the group, then rewritten in correct form for a story.

The traits chosen to be illustrated were *courtesy* and *dependableness*. The standards set up were that the story must be true, must contain a conduct problem, and must end constructively.

<sup>1</sup> Miss Dearborn was formerly Supervisor of Third and Fourth Grades in Los Angeles.—Ed.

<sup>2</sup> Miss Margaret Middaugh, Vine Street School, Grade VI.

Of the stories completed, fourteen were selected as the best and were sent to the Course of Study Department with a note as to how the stories might be used. Seven of the stories gave in the title both the name of the story and the trait which the story illustrated. The other seven gave only the name of the story, and omitted any mention of the trait to be developed. Each set was mimeographed by the Course of Study Department into separate booklets and distributed for use among schools where attempts were being made to clarify abstract conduct traits. The pupils were to read Set I and learn to associate the right conduct trait with the experience described. Then Set II would be distributed and the children permitted to discover for themselves the conduct trait which fitted the stories. Two samples of the different sets are here given.<sup>3</sup>

*Bulletin No. 15: Citizenship Stories*

These stories were written by A6 children. The stories are about children who did the right thing without being told.

When you read these stories, will you see which ones seem the most true?

Which story do you like the best?

Which child had to do the hardest thing?

I

LEARNING BY WATCHING

OR

COURTESY IN PUBLIC PLACES

Little Tommy's mother took him down town one day. It was near Christmas and all the stores were crowded. So many people wanted to go up or down that the elevators were very crowded, too. But little Tommy did not push or shove. He just waited for his turn. And when he and his mother did get in the elevator, Tommy took off his hat.

After they arrived home that evening, Tommy's mother said, "Where did you ever learn to take your hat off in the elevator?"

"Oh," said Tommy, "I saw men take off their hats, so I took off mine."

II

JOHN SHOWS HE IS HONEST

OR

DEPENDABLENESS

John was in the third grade. He was not a very rich boy.

One day as he was playing on the school ground with some other boys,

<sup>3</sup> For the complete list of stories, see the *Citizenship Course of Study*, Los Angeles City Schools, 1927, pp. 107-111.

he saw something lying on the ground. He picked it up and found it was a half-dollar.

John would have liked very much to keep the half-dollar because he had very little candy or ice-cream and he would have liked to taste some. But he said to himself, "It is not my money, so I shall not spend it."

He took the money to the "Lost and Found." The teacher thanked him and said she could depend upon him.

*Bulletin No. 16: Citizenship Stories*

Here are some more citizenship stories written by A6 children. These stories do not say that the boys and girls are honest or courteous or dependable. You are to read the stories and then tell which one of these citizenship traits each child showed.

I

HOWARD'S HOME WORK

OR

?

Once there was a little boy named Howard. He was about nine years old. But he was only in the second grade because of arithmetic.

One evening Howard's friend Jimmy asked Howard to come out and play. Howard said, "No, Jim, I am sorry, but I have home work to do."

Jim said, "Let me do your home work for you."

"No," said Howard, "I do not want you to do it. I would rather not have it done at all."

Howard told his mother that night. She said, "I am glad I can depend upon my son."

II

HOW JOE EARNED HIS JOB

OR

?

One day a teacher asked her class if there was anyone who would like to correct the arithmetic papers each morning. Joe with most of the rest of the children raised his hand.

Then the teacher said, "Joe, you may try for a week."

So the next morning Joe came half an hour early. The teacher handed him the papers and told him to start.

When Joe was half way through, he came to his best chum's paper. It was marked twenty.

At first Joe changed the mark to ninety. But immediately he erased the ninety and put back the twenty, saying to himself, "I must not cheat even if this is my best chum's paper."

His teacher, who had been watching him, said, "Joe, I am very proud of you. You can be depended upon. You may keep the job because you have earned it."

Another type of teacher contribution which proved worth while in the teaching of citizenship was that which showed the constructive treatment of some conduct situation. To secure these, true instances of conduct situations treated in a destructive way were presented by the supervisor to certain teachers who were asked to take the same problem and to see what could be done in working out a solution along more psychological lines. The following example illustrates the results attained by this method of collecting specific helps in citizenship teaching.

*Destructive treatment recorded from supervisor's notes:*

A first-grade child was reported by three children and by one adult for accidentally breaking a school window. The teacher called the child in, asked him who broke the window, and tried to get him to confess the act. The child was frightened and denied the offense. The witnesses were called. Still he refused to plead guilty. Even when his mother was summoned to the school, the child still stayed by his first story. The episode ended with the parent paying for the damage. The child never changed his stand.

*Constructive treatment worked out by a teacher<sup>4</sup> in her classroom:*

The owner of a lunch counter reported to a principal that a certain boy had knocked a glass of jam off the counter and had broken the glass. The boy had then run away without paying for the damage.

The principal reported the offense to the teacher of the boy and asked her to deal with it.

When the children came into the room after lunch the teacher told them she had a problem for them all to handle. She said that it was a problem which was apt to happen to anybody and that it was necessary for everyone to know how to act at such times.

She then referred to the damaging of property by breaking it. She further said that people were usually expected to pay for the damage even if it was caused by accident. What she wanted from the class was help in suggesting ways in which a boy or girl could earn money to pay for damage done without asking their fathers or mothers to bear the burden of expense.

By this time several children who had been in the lunch room when the boy broke the glass wished to tell of the accident. But the teacher merely said, "Yes, I know about that and of course it is ——— who wants to earn money to pay the lady. Now what are your suggestions?"

The face of the boy showed that he was relieved to have help. Many suggestions were forthcoming and several were considered practical by the boy. He was appealed to occasionally in a matter-of-fact way. The

<sup>4</sup> Miss Frieda Bencke, Albion Street School.

attitude of all was one of coöperation in something that might happen to any of them.

After the matter of payment had been settled for the boy, the teacher asked the class to help her write on the board three or four steps which any one should take when damage had been done. The discussion gave the following:

Tell you did it.

Say you are sorry.

Offer to pay for the damage.

During the discussion the teacher found that the boy had run from the lunch room because the owner had been so angry with him that he was afraid of her. The children said she had talked threateningly.

The discussion closed with a mention of the reasons why boys and girls find it hard to carry out the steps the class had listed and what will power it takes to keep oneself up to the right standard.

Many such instances of the destructive and constructive treatment of certain teaching and disciplinary problems were thus worked out and shared through bulletins with teachers who wished to improve their technique in dealing with such problems. In each case study the situations dealt with were real ones and preferably those which had occurred in the Los Angeles schools.<sup>5</sup> Some of the other conduct problems solved by teachers who had an unusual understanding of children included the encouraging of honesty in spelling, the elimination of gum chewing, the teaching of dependableness in choosing the right foods, the breaking of the habit of interrupting, eliminating fighting on the playground, teaching children to give credit when using references, securing promptness in attendance, the prevention of tardiness, and the like. Teachers who had learned to handle disciplinary problems constructively were encouraged to give written or verbal descriptions of their technique so that the various supervisory departments might record these permanently for wider use. It was found that both the experienced and inexperienced teachers were interested in securing such helps and that oftentimes variation and improvement might be made upon the first solutions.

Another coöperative enterprise which resulted well was that of the making of reading seatwork materials by a selected group of teachers for city-wide use. The exercises were based upon illustrations from the Christmas numbers of three well-known magazines. When the material was completed, it comprised about

<sup>5</sup> See *Citizenship Course of Study*, Los Angeles City Schools, pp. 135-146.



one hundred fifty graded reading exercises and their answers. Teachers who wished to use the material secured the magazines and mounted each picture and the accompanying exercise in a folder for class use. In some schools the exercises were beautifully mounted and numbered so that the pupils were able to progress from exercise to exercise and to keep a graph record of their achievements.

The plan for manufacturing these materials for general use was as follows:

1. Forty teachers who had been found to be especially interested in and capable of creating good seatwork ideas were invited by letter to participate in the enterprise. These letters were sent to the teachers through the offices of their school principals that the full coöperation of teacher and principal might be secured.

2. The supervisor in charge of the group prepared a detailed bulletin of instructions. This bulletin included the purpose of the work, and listing of materials to be used, the principles for grading the exercises to fit the needs of pupils from third *Z* to fourth *X* classes, samples of exercises to be made, directions for assigning the exercises or for carrying them out, points to keep in mind in making the materials, and a form or organization for uniform editing so that the supervisor would not have to re-write the exercises.

The bulletin also stated that the material would be graded into three sets of difficulty. It was assumed that the simplest, or Set I, material should have no spelling difficulties in the answers to the assignment, that the reading vocabulary should be of as nearly second grade ability as possible, and that the types of exercises chosen should purpose to routine the pupil's thinking along a few especially needed lines. Consequently Set I exercises consisted of (1) *Yes* and *No* tests, (2) choice of answers, (3) completion, and (4) classification lists. In every case, the words needed for the answers were given somewhere in the exercise so that the chances of misspelling were at a minimum. The fatigue of too much writing was also eliminated through the brevity of answers required.

3. The directions purposed to be so worded as to direct a child's thinking along a definite sequence and toward a successful outcome. He was to be taught a sort of 1, 2, 3, order of thought in order to remove the chaos of mind which the *Z* group child often

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feels when confronted with a series of exercises to be worked out. The following directions represent the simple sequences of thought involved:

### SET I

#### CHOICE OF ANSWERS TEST

Directions:

Copy the number of each sentence.

Choose the right word in each ( ).

Place it after the number of each sentence.

Sample exercise: 1. The children were going to (church, school).

#### COMPLETION TEST

Directions:

These sentences tell about a picture.

Copy the numbers of the sentences.

Write one of these words to fit into the blanks.

Sample exercise:

Santa Claus

Airplane

sky

ride

1. The boy is dreaming about ———.

2. He wishes Santa would bring him an ———.

#### TRUE AND FALSE TEST (SENTENCE FORM)

Directions:

Copy the numbers of these sentences.

After each number, write *Yes*, if true; *No*, if false.

Sample exercise:

1. This little boy is alone.

2. He is in a large city.

#### TRUE AND FALSE TEST (QUESTION FORM)

Directions:

Copy the numbers of these questions.

Answer each question correctly with *Yes*, or *No*.

Sample exercise:

1. Is the man in the picture old?

2. Does he look sad?

#### CLASSIFIED LISTS TEST

Directions:

Read the words in this list.

Copy the words that name something in the picture.

In Set II, the vocabulary was more difficult, the directions were more varied in wording, and new types of exercises were added.

Set III differed from the others in that the exercises required original composition, some inference as well as fact analysis,

a wider range of vocabulary to include geographical, scientific, and arithmetical terms, and a more involved type of exercise. Much writing was required of the children able to do the Set III work. This was found necessary because the X pupils in Grades III and IV complete their assignments so much more quickly and need to be given practice over a larger range of written words.

Samples of the Set III exercises are as follows:

#### COMPOSITION TEST

Directions:

Use your books to spell the hard words.

Write a short story and tell:

1. Who is in the picture.
2. The name of the lady.
3. The dog's name.
4. Where they are.
5. Why the lady looks so happy.

#### COMPOSITION TEST

Directions:

Answer each question in a sentence.

You may use your books to help you in spelling.

#### RIDDLES

Directions:

1. Write the answers to these riddles.
2. Look in one of your books if you need help in spelling words.

#### TRUE AND FALSE TEST

Directions: (one type)

Copy just the sentences that tell what is true in the picture.

Directions: (second type)

Change these sentences so that they will tell what is true in the picture.

#### COMPLETION TEST

Directions:

Copy the words below.

Number them as they appear in the story.

#### WORDS OUT OF PLACE

Directions:

In each of these lists one word doesn't belong to the list.

Can you tell which word does not belong?

Number your paper from 1 to 10, and write the word that is out of place.

1. purple, white, green, dog.

#### CLASSIFICATION TEST

Directions:

Copy from the list the words which name a color in the picture,

Copy from the list the names of places where the two women might be going.

Copy the words which name something in the picture.

Put one line under the things that can walk.

Put two lines under the things that are alive.

4. At a called meeting of the teachers who were to help make the exercises, the bulletin was passed out and explained. The teachers were asked for and gave many valuable additional suggestions. Certain of the supervisor's ideas were criticized and discussed frankly. Changes were made according to the results of the discussions. All felt that the main purpose of the meeting should be to make the material as practical as possible and that any flaws in directions and educational principles should be detected before the actual making began. It was decided, too, that if any teacher submitted exercises which the other members of the committee felt were not up to the standard set, such exercises should be deleted and all criticisms should be accepted impersonally. Each teacher felt that this was an opportunity for guidance in creative work. The spirit of the meeting was that of students working on a common problem.

5. The supervisor next displayed samples of exercises she had worked out and mounted in various ways. Here again the committee gave valuable assistance in selecting the most practical form of mounting and in supplementing the ideas which the supervisor tentatively set forth.

6. As the materials had to be prepared and ready for distribution before the current number of the magazines was exhausted, it was agreed that each member should try to have her contribution ready for editing by the supervisor within a week's time. This would allow two days for editing, two days for the printer to prepare the first set of exercises, and a distribution of the bulletin to the third and fourth grade teachers of the city on the Monday of the week following. In the meantime, a letter would be sent to each school principal telling her of the forthcoming materials and the need for collecting the magazines in which the pictures accompanying the reading exercises were to be found.

7. The supervisor next distributed the pictures from the magazines so that each teacher had about an equal number for which to make exercises. It was agreed that more of the easier than the

difficult exercises would be needed and that the proper ratio of output would be three exercises of Set I to two of Set II and one of Set III.

The plans worked out remarkably well. Only one teacher failed to produce her material in time to be used, and this delay was caused in mailing, not through any fault of the teacher. Many of the exercises, upon examination by the committee at their final meetings, were revised and some were even discarded. Three or four members of the committee were soon recognized as having superior ability to create and judge materials. All of the members felt that they had learned from each other and from the opportunity to work out such materials on so large a scale. That the seatwork materials were acceptable was soon proved by the way the teachers of the city sent in requests for additional copies of the printed exercises. One or two schools contributed beautifully mounted sets for display purposes, in addition to the sets for their own use. Such an activity could well be carried out every four or five years and in this way keep the supply of seatwork materials fresh and up-to-date in ideas. The one great defect in the material was caused by the fact that the pictures in the magazines did not lend themselves to exercises which could be related to geography, nature study, and such fields.

Many more activities might be described to show how the teachers of the Los Angeles city schools are cooperating with the supervisory departments in the effort to improve instruction. Each supervisor in the system will testify to her appreciation of the splendid support most of the teachers are giving. With so many teachers as are on the payroll of Los Angeles and cities of such size, there can be few activities in which the entire teaching force may participate at once. But any supervisor may at all times enlist the aid of a few teachers. Gradually the circle of assistance grows larger, for, as materials grow and become widely used, the influence of the makers of the materials is felt. Teachers can often sell to each other ideas which are less popular when presented by a supervisor in a formal meeting. Similarly, teachers are often able to explain clearly and in concrete terms that which a supervisor makes too theoretical. For this reason, supervisors today are finding it worth their while to adopt the longer and more circuitous route of cooperative planning instead of playing a "lone hand" in working out instructional activities.

## CHAPTER XX

### TEACHER PARTICIPATION IN CURRICULUM CONSTRUCTION

PRUDENCE CUTRIGHT

There is widespread agreement, at least in theory, that teacher participation is an integral part of every program of curriculum revision or curriculum construction. Classroom teachers, working in coöperation with the curriculum expert, ensure, as far as possible, a course of study which is developed from within the group and not superimposed by an outside agency. The services of the expert are necessary to sound curriculum development but no more so than are the services of the successful classroom teacher who is daily making her contribution to the techniques of teaching. Furthermore, teacher participation invites an understanding of curriculum problems which will pave the way for the acceptance of a course when completed. Teacher participation should be so organized as to bring to the work of revision the best classroom practice; the practical criticism of those who are daily confronted with the problem of planning pupil activities; and some provision for acquainting the teachers, who will be called upon to use the course of study which is undergoing revision, with the content and techniques of the course before the course appears in print.

The problem of outlining a program which will provide for teacher participation, in the fullest sense of the term, is a difficult one. The inclusion of large groups of teachers in curriculum committees, even were it possible to have them relieved of their classroom duties, is apt to be cumbersome and unproductive. Not all teachers have the leadership, interest, and aptitude necessary for curriculum work. Thus, the common procedure is to select a group of from five to ten teachers to carry on, with expert assistance, the major activities of curriculum construction. In a city where curriculum revision is regarded as a continuous process, as it rightly should be, there are frequently a number of

such committees at work, each in a particular field of subject matter. Such a small committee scheme within a large group of teachers may be termed representation; but unless such representation is supplemented by more inclusive activities for securing the suggestions and criticisms of the larger group, it does not constitute true teacher participation. Small committee representation leaves large groups of teachers without a definite channel for contributing or suggesting. The values of teacher participation which have already been mentioned are secured only when all interested teachers are given an opportunity to contribute and criticize. A major obligation of the small curriculum committee is to provide for city-wide participation at each and every stage of the curriculum program. It is only through such an enriched procedure that curriculum construction may become an outgrowth of the best thought and the best practice in the field. All teachers may not respond, and there will be a great variation in the value and pertinency of the responses which are made. The opportunity to participate, however, will bring into relief those individuals who are interested and who have contributions to make.

If curriculum programs are accompanied by teacher training activities to acquaint teachers with the most helpful research and with the best thought in the field which is undergoing revision, it is usually found that teacher response is almost universal and many vital contributions are secured. Teacher training provides a background of information for the making of criticisms and suggestions. If properly planned, it places teacher participation activities on a research basis. The curriculum expert has his chief function in providing this background of understanding of curriculum problems and in providing the techniques for carrying needed studies to a satisfactory conclusion.

It is the purpose of this chapter to present certain techniques for securing the criticisms, suggestions, and contributions of large groups of teachers. The procedures here outlined have been used in Minneapolis in connection with curriculum programs. As devices they are commonplace. As techniques for securing teacher participation they have been fruitful in establishing contacts between small curriculum groups and large groups of teachers or large groups of principals, as well as being valuable in the material contributions which they have brought in. The fine atti-

tude of Minneapolis teachers and principals towards research and their understanding of curriculum problems have made teacher participation a constructive force.

The techniques which will be described in brief are of several types:

- Type I. Teacher participation in studying children's interests in elementary science as a basis for a course of study.
- Type II. Principal's participation in reporting teachers' questions on the teaching of recreational reading.
- Type III. The collection of illustrative procedures in teaching recreational reading.
- Type IV. Criticisms of a tentative course of study in seventh grade geography by seventh grade geography instructors.

#### TYPE I

*Problem.* To gain some knowledge of children's interests in elementary science.

*Description.* The material of this unit furnishes an illustration of a large group of teachers participating in a study the results of which formed a basis for selecting materials to be incorporated in a course of study. The study was conducted by a special supervisor in connection with her usual duties.

A report sheet was prepared and placed in the hands of each elementary school teacher. This report form provided a space for recording questions asked by pupils. The teachers' interest in coöperating in this study was solicited through the supervisor's contacts with the teachers in their classrooms. The report forms were used for one year. During this one-year period each teacher submitted several reports. No particular time was designated for the making of reports. Teachers handed their contributions to the supervisor when she came to their classrooms, or they were sent in when the teacher believed she had something of interest to report.

The committee used this table (Table I) as an index of children's interest in selecting materials.

Twenty-five questions asked by third grade children are recorded here. These were selected at random from the entire list of 745 questions.



TABLE I

FREQUENCY OF QUESTIONS ON COMMON TOPICS—THIRD GRADE<sup>1</sup>

Plants .....	47
Animals .....	55
Atmospheric conditions, cyclone (smoke, steam, breath) .....	236
Water .....	32
Color, light, shadows .....	22
Sun, moon, stars .....	195
Earth .....	16
Seasons .....	11
Days and nights .....	19
Radio, telephone, airplane .....	6
Stones, soil, sky, air .....	41
Foods (fruits and vegetables) (milk, buttermilk) (sugar) .....	20
God .....	3
Surface, mountains, lakes, rivers .....	11
Iron, coal, oil, clay, lead, chalk, gold, silver .....	12
Gas, gasoline, engines, fire, electricity .....	11
Paper, glass .....	4
Streets .....	1
Slips .....	3
Total .....	745

## TYPICAL QUESTIONS BY THIRD GRADE PUPILS

- Why does the squirrel have such a big tail?  
 Why do some flowers have no perfume?  
 Why is the sky blue?  
 Why do they have different colors?  
 Why do we have hail when it is hot weather?  
 Why isn't the moon always the same?  
 Why is the land high in some places and low in others?  
 How did we first learn about time, and clocks?  
 How do the men know when the moon will set next month, etc.?  
 What makes airships fly?  
 How do telephones work?  
 How do they send the S. O. S. signal on ships?  
 What happens to the falling stars?  
 How do they know the sun and planets are certain distances from us?  
 What causes gold and silver to form in the mines?  
 How were the mountains made?  
 How is coal formed?  
 How can electricity give power?  
 How does a voice carry over a telephone, a radio, a victrola?

<sup>1</sup> Unpublished study by Jennie Hall, Supervisor of Elementary Science, Board of Education, Minneapolis, Minn.

How can the world move so we don't know it?  
How do animals get the salt they need?  
Why is the sky so many different colors at sunset?  
What makes our breath show on the window?  
Why do the stars shine only at night?  
Why is December 22 the shortest day?  
Why are days longer in summer and shorter in winter?  
Why does China have night when we have day?  
Where does the sun get its light?

*Comment.* This brief exposition of children's questions gives but a limited view of the suggestiveness of the entire range of material. The study was not highly controlled; its method was informal. It is quite true that a committee using the results of a study such as this should be conscious of its limitation as well as its values. It is quite probable that the children's questions were influenced by the daily work of the classroom and by current happenings in the community or in the world at large. Thus, the number of questions on "atmospheric conditions" (Table I) may, in part, be attributed to unusual cyclonic disturbances occurring over certain areas of the United States during a period of the study. Likewise, the classification headings used in Table I are not of equal scope. "Atmospheric conditions" is more inclusive than is "Water" or "Streets."

With the limitations in mind, the results of a study such as the one reported here are extremely valuable in bringing new and interesting materials into a course of study. Because of the large number of teachers participating in the study, the results were probably representative of children's natural inquiries.

## TYPE II

*Problem.* To gain a brief over-view of teaching difficulties in the field of recreational reading.

*Description.* As an initial step in a curriculum program in recreational reading, a questionnaire was sent to each elementary school principal. The principal was asked to report questions relative to the teaching of recreational reading as difficulties in the teaching of this subject came to his attention. The principal was asked to work independently, without consulting other principals, in order to secure reports which represented individual judgments and experiences.

The questions reported were used, as far as possible, as a basis for supervisory bulletins, discussions, meetings, and studies of materials.<sup>2</sup> A summary of the questions collected is presented here because it gives an interesting over-view of a situation prior to a program of teacher-training and curriculum revision.

Group I. Questions related to the general nature or purpose of recreational reading.

1. Is recreational reading an end in itself?
2. What is the basic aim in recreational reading?
3. Is the purpose to appreciate along any line besides literature?
4. Should pupils read with a definite aim in view or merely for entertainment?
5. Are we to set up definite aims in recreational reading?
6. What powers should recreational reading develop?
7. Do checks or tests interfere with appreciation?
8. What are the elements that make up appreciation?
9. What types of appreciation should be developed and why?
10. How can recreational reading be directed into desirable channels?
11. Is recreational reading to be carried on during the reading period only, or outside of school as well?
12. Does recreational reading include informational reading to any great extent, or shall this be classed with the work type?
13. How shall we know when the children have had the various experiences we wish them to have?
14. Should more than allotted time be devoted to reading this year?

Group II. Questions related to the general nature of teaching techniques to be employed in recreational reading.

1. How may children be led voluntarily to read good books and magazines?
2. What are some of the methods that may be used to discover pupils' interests?
3. What are the particular interests that the teacher should aim to cultivate?
4. How much reading aloud is it advisable for the teacher to do?
5. To what extent should the teacher guide the recitation or the discussion?
6. Should the pupils be given questions covering the recreational reading material?
7. Should teaching techniques aim to promote extensive or intensive reading?
8. Should dramatization ever be more than very formal?
9. Is it advisable to give a grade in literature on the report cards?
10. How can a teacher have a definite idea of the appreciation which her pupils derive from a selection if no check is made?

<sup>2</sup> *Course of Study in Recreational Reading, Grades 4, 5, and 6, Minneapolis Public Schools. Board of Education, Minneapolis, Minn., 1928.*

11. In order to clarify a child's mind should we ask that a written or oral summary, covering the central thought of the selection read, be given?
12. Are there any approved methods of measuring appreciation?
13. Is the kind of book report used by the Public Library in its summer reading project approved?
14. To what extent should oral reading be a part of the recreational reading program?
15. What should be the proportionate time spent in oral and silent reading in each grade?
16. Is it advisable to have recreational reading organized on the basis of large units of study?
17. Would it not be advisable and profitable to have examples or detailed outlines of such units?
18. Which is more desirable, to select a center of interest to cover a few weeks or to allow the pupils to select their own subjects?
19. Should each grade have a list of poems to be memorized?
20. In taking up poetry, is it better to have the children read the selection by themselves first, or to have it read by the teacher?
21. Are we justified in requiring certain poems to be memorized by the entire class?
22. Should any pupil be required to memorize poetry against his will?
23. What means might be employed to get the teachers themselves interested in and well-informed in regard to poetry for children?
24. In teaching poetry is it not necessary to spend some time upon the work type method, *e.g.*, the geographical and historical setting?
25. How extensive should a recreatory reading program be?
26. How should the teaching of poetry differ from the teaching of prose?
27. To what extent should the pupils be held responsible or accountable for their recreational reading?
28. What is the place of memory work in recreational reading?
29. How much vocabulary work should be done?
30. What shall be done with pupils who read too much of certain types?
31. Shall all written book reports be discontinued?
32. How far shall teachers go in keeping a check of individual preference in order that a child may be led to do wider reading?
33. What are some of the teaching practices that may be employed in teaching *Heidi* and *Hiawatha*?
34. Should credit be given for library books read? If so, how?

Group III. General questions on the selection or usage of materials.

1. To what extent should pupils' choice determine the material to be used?
2. What should be the difficulty of the material with respect to the grade in which it is to be used?
3. To what extent should teachers be free to select the material?
4. Would it be better to have small libraries in each room, or a central library in the building?

5. Will it be possible to have more materials suitable for recreational reading supplied for the grades?
6. After pupils' interests and abilities have been determined, how are we going to supply them with sufficient material?
7. May we be informed as to some of the most practical methods of building a library of the best recreational and extensive reading material either for temporary or for permanent use?
8. How can we teach children to evaluate newspaper and magazine reading?
9. Should pupils be permitted to read library books during any period of study, provided they are prepared for the next lesson?
10. Organized as we are, how can we use material to the best advantage?

*Comment.* Approximately eighty elementary school principals submitted questions. These questions indicated points to be covered through bibliographies, supervisory bulletins, and teachers' meetings. Undoubtedly many of the questions reported appeared insignificant once the teacher-training program was in progress. As an over-view of the situation prior to such a program, the questions were most suggestive and helpful.

### TYPE III

*Problem.* To secure from a variety of classrooms suggestive procedures in teaching recreational reading.

The collection of suggestive lessons followed a teacher-training program comprised of teachers' meetings, supervisory bulletins, lectures, and reviews of books and periodicals.

### FORM A

#### DIRECTIONS FOR COLLECTING ILLUSTRATIVE PROCEDURES

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- I. *Purpose.* In order that we may formulate a record of what has been accomplished in recreational reading up to this time, it is necessary to collect some type lessons to be used in a tentative course of study. It is planned to have this bulletin ready for circulation at the beginning of the next school year.
- II. *How the typical procedures are to be collected.* The two lessons to be reported may be chosen in any way that the principal wishes. These reports may be based upon outstanding lessons already observed or upon lessons observed especially for this report. *Please do not report lessons on the teaching of poetry*, since we already have a sufficient number of such illustrations. The lessons reported should be selected from the fourth, fifth, or sixth grade. No principal should report two lessons illustrating the same activity.

III. *Form of report.* A blank form is attached which may be used in reporting lessons, but the following outline may be helpful in answering questions regarding your reports.

A. Difficulties that may be encountered.

1. Difficulties which may arise due to type of lessons observed.
  - a. A lesson complete in itself.
  - b. A lesson initiating a series. (In this case the lessons which will probably follow the one observed should be briefly outlined.)
  - c. A lesson in the midst of a series. (Under these conditions the lessons preceding and those that will probably follow should be outlined and explained.)
  - d. A lesson concluding a series. (Here the preceding lessons should be outlined.)
  - e. A lesson correlated with other subjects. (This would involve a description of the nature of the correlation.)
2. Difficulties which may arise due to the organization of the class. (Where a group technique is used and where each group is using different material, kindly report the nature of the material used by each group.)

IV. *What should a report include?* The form supplied will furnish the major divisions but the following questions should be used to check your report. First, write your report in narrative form, then check it with these questions to see if you have omitted any important points.

- A. Does your report state the objective or objectives?
- B. In the case of more than one objective, is the major objective stated first?
- C. Does your report indicate the materials used, who selected them, and an evaluation of their general appropriateness?
- D. Have you stated clearly and concisely the major teacher and pupil activities?
- E. Does your report show how the teacher created an interest in the lesson or how she approached it?
- F. What were the pupils' reactions to this lesson, as, their comments, their questions, and their interest in wider reading?
- G. What was the "atmosphere" of the classroom, social or otherwise?
- H. What would be your suggestions for improvement if this lesson were to be re-taught?

V. *Length of reports.* It is undesirable to set a limit on these reports. They should be sufficiently long to give a clear-cut picture of what transpired in the class observed. The procedures reported in the work reading bulletin may give some guidance, although they are not suggested as models.

VI. *Date when reports are due.* On or before May 17.

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In developing directions for collecting classroom procedures, such as is called for in Form A, provision must be made for meeting various types of classroom situations. Point III A sets forth

types of lessons which may be encountered in observing classes in recreational reading and suggests ways of reporting each type. Provision for meeting through definite directions these variable situations aids in securing usable reports. In order to determine the extent of the difficulties which may be encountered, the directions and forms must be tested under the actual conditions in which they will be used. The development of a simple direction sheet (Form A) and a form for reporting typical procedures (Form B) requires classroom visitation.

### FORM B

#### FORM FOR REPORTING TYPICAL PROCEDURES IN RECREATIONAL READING

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SCHOOL..... DATE..... 192.. GRADE....  
 TEACHER..... REPORTER.....  
 .....

- I. The type of lesson (see Direction Sheet—Section III A).
  - II. The objectives of the lesson observed.
  - III. A narrative description of the lesson (see check questions—Direction Sheet under IV).
  - IV. Points to be considered, were the lesson to be improved.
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*Comment.* The lessons which were collected by the above scheme were read and evaluated by the curriculum committee. Certain selected procedures were then incorporated into a course of study in recreational reading.<sup>3</sup>

### TYPE IV

*Problem.* To secure criticisms and suggestions on a tentative course of study in geography.

*Description.* The curriculum committee developed and sent out a course of study in geography for the seventh grade. A "suggestion blank" was inserted after each unit of material. A sample blank is reproduced in Form C.

After teaching the unit of work suggested in the course, the teacher filled in her suggestions and criticisms in the blank provided. A compilation of the suggestions gained through the use of these blanks enabled the committee to enrich the tentative course through the addition of pupil activities and interesting approaches.

<sup>3</sup> *Course of Study in Recreational Reading.* Minneapolis Public Schools.

## FORM C

## SUGGESTION BLANK—GEOGRAPHY

NAME OF UNIT..... CONTRIBUTING TEACHER .....

DATE..... 192.. SCHOOL.....

It is desirable to secure each geography teacher's suggestions on the units of work which are incorporated in the tentative revision of the old course of study. Undoubtedly every teacher will have additional objectives, interesting approaches, and worth-while problems to add to the various units. Kindly use this form for reporting your suggestions on each unit.

1. What objectives would you add?
2. What approach aroused the most interest? What other approach would you suggest?
3. What problem did you find sufficiently valuable to add to this unit?
4. What other activities do you believe worth while?
5. What tests or measurements, if any, did you use to evaluate this unit? (Please attach copy of any test used.)
6. Please list any references used in teaching this unit, giving author, title of book, magazines, pamphlet, or bulletin, and by pages. Please indicate whether for teacher or students.
7. How many days would you devote to this unit?
8. General Comment: Please feel free to give your frank opinion as to the value of this unit. (Use the reverse side of the paper for comment.)

The question upon the amount of time devoted to a unit, point 7 on the blank, brought to light an interesting variation in the emphasis which different teachers placed on the same units of material. Table II gives the results for nine units.

TABLE II  
TIME SPENT ON UNITS OF WORK

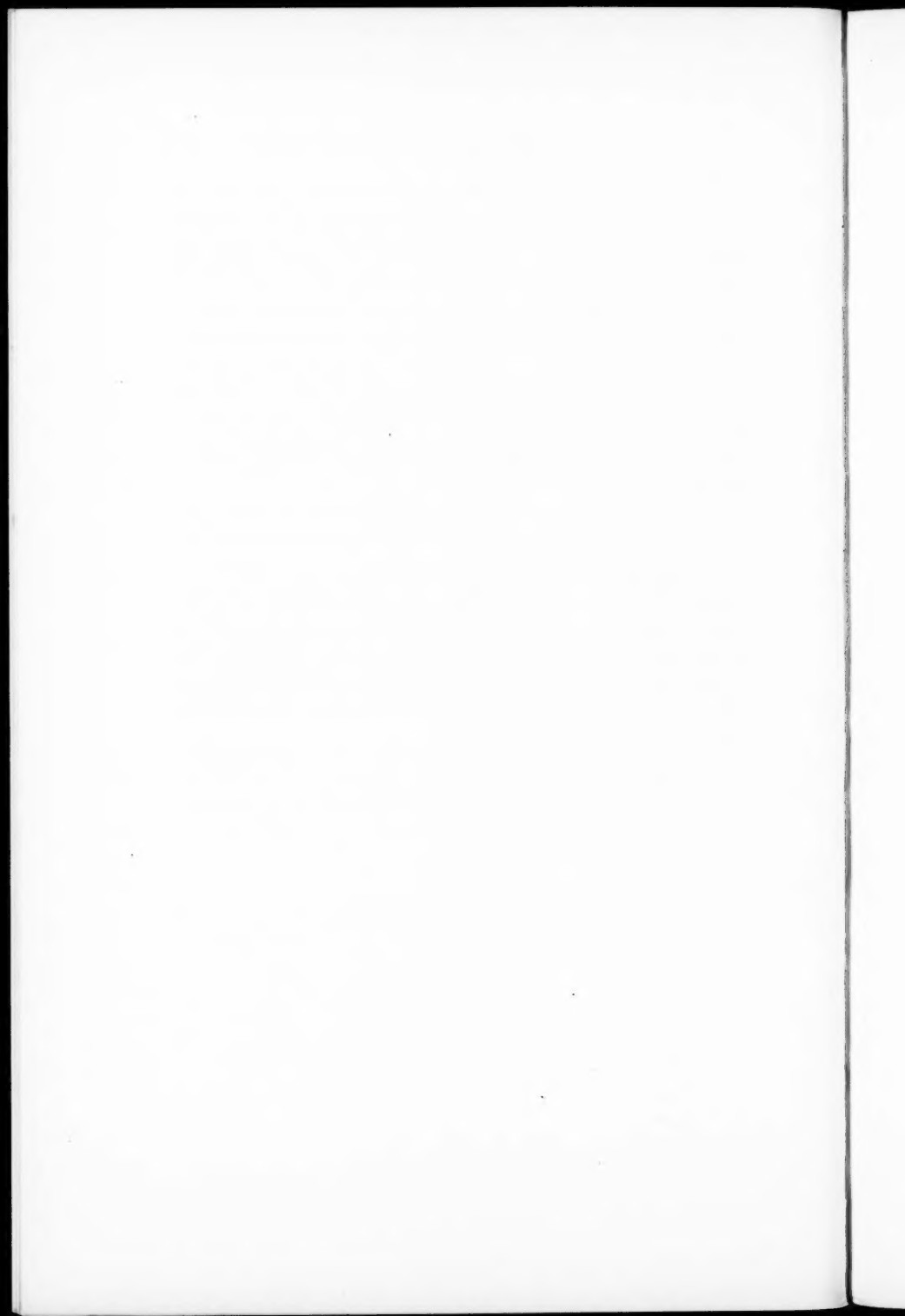
NO. OF UNIT	NO. OF TEACHERS REPORTING	RANGE IN TIME SPENT ON UNIT
I	21	3 to 25 days
II	24	5 to 30 days
III	21	5 to 25 days
IV	6	2 to 10 days
V	20	10 to 21 days
VI	5	4 to 10 days
VII	11	5 to 10 days
VIII	9	5 to 15 days
IX	20	15 to 35 days



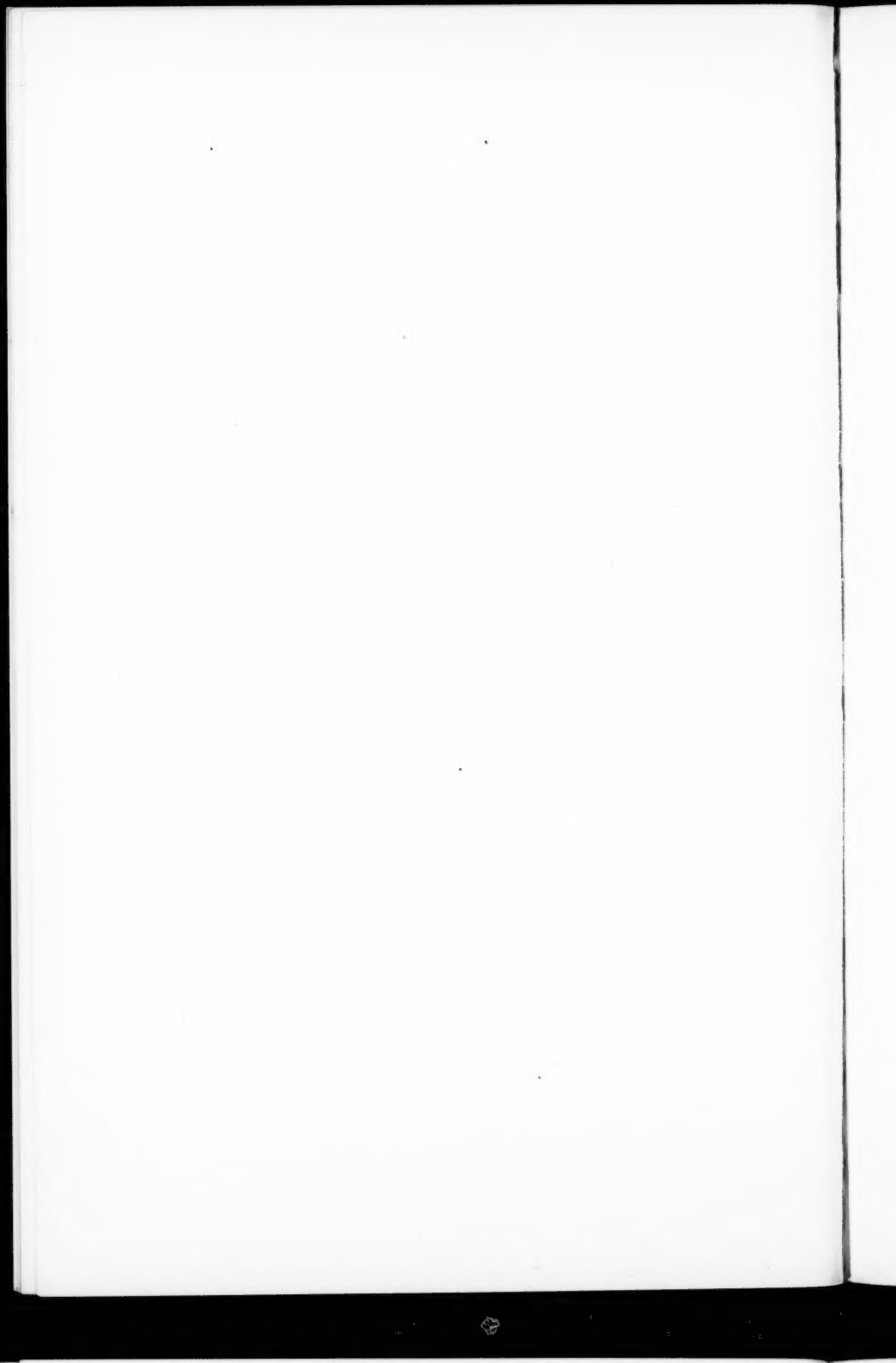
Table II indicates that some teachers spent three days on Unit I, while other teachers spent 25 days. A similar variation is displayed on other units. Although a course of study may suggest the same activities and materials to all teachers, Table II shows that the amount of time which will be consumed in carrying out the suggestions varies greatly. The information given in Table III permits the curriculum committee to state the average time for each unit. This "average time" is only a tentative goal, but it may suggest to the teacher an apportioning of available time among the units to be treated. A reasonable variation in the amount of time devoted to a unit is desirable. Teachers should feel free to vary the time to suit the interests and needs of students.

The matter of tests, reported under question 5, is being made the subject of a special study. The limits of this chapter will not permit the reporting of this study.

The materials secured by the use of the techniques here suggested give at least a partial illustration of the value of teacher participation. Planning for effective teacher participation is one of the most vital activities of the curriculum committee. The collecting and conserving of the ideas and suggestions of successful teachers is an obligation of those engaged in curriculum development.



SECTION SEVEN  
APPRAISAL AND SUMMARY



## CHAPTER XXI

### SURVEYS OF TEACHING TYPES AND SKILLS

S. A. COURTIS

The problem of adequately rating teachers or teaching is one which has perplexed many school men. That the superintendent of a system of any size has need to know the merit of the various teachers employed is almost self-evident, but any attempt to secure merit ratings almost inevitably leads to difficulties. The ratings obtained are almost certain to be conflicting unless they are all made by one person. Such variation gives rise to protests, antagonism, feelings of injustice, and breakdown of morale. Finally, if any one rating scheme is used persistently year after year, the inevitable outcomes seem to be hypocrisy, dishonesty, and almost open manipulation of the ratings by individuals to secure personal benefits to which they are not properly entitled. It is little wonder, therefore, that many superintendents, after experimental trial, have come to the conclusion that teacher ratings make more trouble than they are worth.<sup>1</sup>

Yet the need remains. For instance, no truly scientific measurement of the effects of factors in teaching can be carried on in education under the law of the single variable if the teacher's ability is an unknown quantity. Nor can the profession make much advance in merit or social standing if the less able and more unscrupulous teachers are as likely to be promoted and rewarded as the more able and more meritorious.

Fortunately the situation is by no means hopeless. The cause of the difficulty in teacher rating is known and there is a method by which the difficulty may be obviated. All that remains to be done is to educate those whose business it is to rate teachers and to persuade them to give the truly scientific method of rating a trial. They will then be convinced by their own results.

The difficulty in teacher rating lies in the failure of most per-

<sup>1</sup> "Teacher Rating in the Secondary Schools." *Educational Administration and Supervision*, September, 1926, page 361.

sons in education to distinguish between "description" and "evaluation." These two activities differ wholly in character and serve totally different functions. Unfortunately in most of the affairs of life description and evaluation are well nigh inextricably mingled. Moreover, we ordinarily "describe" in order to "evaluate"; so that in rating, evaluation seems to many to be the only activity involved. It may easily be proved that such is not the case. It becomes important, therefore, to separate these two activities both in our thinking and in our practice.

Description, as an activity, consists in presenting to our minds by means of verbal symbols some experience in terms of some other experience chosen as a standard of comparison. Thus, if I say, "This is a hot day," it means that I have compared this day with other days in my experience and found it to be like one I have previously labeled "hot." Everyone who has experienced "hot" knows what I mean. Had I said "This is a 'knug' day," no one would have known what I meant; for I just made up that word to represent the kind of day I am this minute experiencing. No one without either sharing my experience or being told what "knug" stands for in terms of standard experiences<sup>2</sup> can possibly know what "knug" means.

Personal invention of language in this fashion when unnecessary leads only to confusion. Accordingly man has learned to standardize the verbal symbols used in his descriptions. Indeed, the subjective element plays such a large part in uncontrolled description that in certain fields we, as a race, have found it necessary still further to standardize even our perceptions of experience and try to make description objective. Science, as an activity, has for its distinctive functions the standardization of the perception of experience and the precise, impersonal description in objective terms of what is perceived. Under such conditions *only* is it possible to discover the causal relationships between the factors of experience. Science rests largely on measurement, and measurement in the last analysis has for its goal standardized description.

For instance, unaided I cannot be trusted to describe a day in any reliable fashion. This day may feel cold to me and hot to you. Moreover, I, myself, may change my perception of the

<sup>2</sup> It is a cold, damp, foggy, oppressive morning. The sun is long overdue, and the boats on the near-by river are persistently tooting their whistles.

day from minute to minute. The hot flush of embarrassment may cause me to break out in sweat; the next minute sudden terror may congeal my blood and freeze the marrow in my bones. Feelings are unreliable indices of temperature. As a result, man finally was led to invent the thermometer. However differently you and I may "feel" at a given moment, if we read the same thermometer at the same time with equal scientific care, we can describe what we call the "real" temperature of the day in the same standardized terms.

The essence of *all* measurement is comparison, and the product of all measurement is standardized description. The value of measurement, and of science, lies in the fact that it makes it possible for man to know and express his experiences in a consistent manner and to trace relationships between experiences. Such consistent, verifiable, stable knowledge yields control and makes possible coöperation between men of different feelings.

Evaluation, on the contrary, is *primarily* a matter of taste and feeling. Two men may measure the temperature of a cup of coffee and *agree* that its temperature is 130° Fahrenheit. Yet one man may truthfully say, "I don't like it. It is *too hot* for me," and the other may say just as truthfully, "*I like* my coffee hot. It is just right for me."

The dictates of feeling are absolute. The sources of personal choice and taste are beyond the ken and control of man, hidden in his inner nature, an unexplored and so far an unexplorable realm. Each one of us, in the last analysis, *likes* what he *likes* solely because he *likes* it. There is neither rhyme nor reason to liking. *Evaluation consists in passing judgment on perceived or described experiences in terms of personal feelings.*

On first thought, this definition of evaluation seems much too narrow. Many persons claim that one can evaluate scientifically, and there is a certain validity in such a claim. We adopt a particular purpose, and we scientifically collect and describe the consequences of a variety of actions related to our purposes, finally choosing that plan of action *as best* which produces the result desired. This *is* scientific evaluation in terms of a predetermined purpose. But why did we choose that particular purpose rather than some other? The answer, as before, is to be sought in the peculiar nature of the individual which made him feel differently about the chosen purpose than about all others.

For instance, suppose I live in Detroit and wish to go to New York. Suppose, further, my purpose is to select a train, and that I *don't like* to ride at night. The time table contains a precise scientific description of just when each train leaves Detroit and just when it reaches New York. There is nothing about these descriptions to indicate that one train is more meritorious than another. But if I evaluate them, I say, "The early morning train is the *best* train for me." The merit implied in that *best* comes from my feelings about the relative value of traveling by day and by night.

Now, although some people like to travel by day, some others just as strongly like to travel by night. If all persons felt *strongly enough* that night traveling is an undesirable experience, the railway company would have no night trains. Human feelings, however, are so varied that the company must supply trains at all hours of the day and night. It is the function of personality to evaluate distinctively in terms of its peculiar feelings.

Let us now apply these ideas to teacher rating. It has been shown scientifically that the philosophy of the rater affects his rating.<sup>3</sup> That is, the teacher that one superintendent describes as "the best teacher I ever saw," another superintendent rejects as "the worst I ever saw," because they have adopted different educational outcomes as desirable. The conflict arises from the fact that they are evaluating the same facts from different viewpoints.

The remedy is obvious. In teacher rating one must separate description from evaluation and carry on each in terms of its own essential nature. *Description* may be done by anyone provided standardized, objective instruments of measurement are available, and provided further that the person making the measurement is adequately trained in their use.<sup>4</sup> Consistent *evaluation*, however, may be carried on only by those who hold the same philosophy of education.

<sup>3</sup> Courtis, S. A., "The Influence of the Philosophy of a Rater upon Teacher Rating," *XVth Yearbook, National Society of College Teachers of Education*, 1928, page 42.

<sup>4</sup> The personal integrity of the measurer is a third factor. Any measurement may be manipulated, but two honest persons whose measurements agree may unmask the manipulations of a dishonest person. Under conventional schemes of teacher rating an honest superintendent is almost at the mercy of dishonest assistants. Under the scheme here advocated, dishonesty can readily be located and proved to be dishonesty. Therefore, honesty is not included in the provisos.



Ordinarily no two persons do hold precisely the same philosophy. Therefore evaluation cannot safely be delegated permanently by a superintendent. Evaluation is the supreme function of the court of last appeal. When need arises, the activities of subordinates must have been such as to supply the superintendent with reliable, impersonal, objective descriptions, as empty of feelings of merit as a time table. It is for the superintendent to decide whether it is *best* to ride by night or by day, *best* to retain this kind of a teacher or that.

Said in more conventional language, the superintendent, as the chief executive officer of the Board of Education, should formulate and recommend to the Board for adoption the philosophy of education which he "feels" is the *best* philosophy. He ought, of course, to review all existing philosophies and the arguments in favor of each, before making a choice, but there is no escaping the fact that *choice* of a basic philosophy is an arbitrary matter to be decided in terms of *feelings* of worth by the person who is responsible for making decisions.

There is no way known to man by which the relative value of different philosophies may be determined. Yet indecision in policy and executive action inevitably entails conflict and waste. A school system without order and coördinated effort is inefficient and full of harmful conflicts. Intelligent planning and scientific determination of the "*best*" means of achieving the selected goal both become possible as soon as the goal itself is defined. The selection of the goal is the critical factor. As soon as a basic philosophy has been adopted by a Board of Education and put into effective operation as a standard of judgment, consistent evaluation becomes as easy as consistent description and may be delegated. On the other hand, a superintendent, operating without a decisive formulation of philosophy, is the only person who is able to evaluate intelligently.

Many persons throw up their hands in holy horror at the mere thought of serving in a school system with a defined philosophy and scientific evaluation in terms of the fixed standards of merit.

"Are teachers to be given no freedom of choice?" they ask. "Would not such a system 'steam-roller' all teaching personality and reduce professional effort to a mechanical, lifeless process?"

The fear would be well-grounded if in such a system no provision were made for experimental variation from standard ways. Variation is essential to progress and variation must be as systematically provided for and as consistently and open-mindedly appraised as standardization. Since the selection of a basic philosophy is wholly a matter of arbitrary choice, the superintendent and Board may have chosen unwisely. No one will be more conscious of this possibility than the superintendent himself. Accordingly he will anxiously appraise the effects of his decision, consciously search for suggestions of other possibilities of choice, and welcome suggestions for experimental variation. There is a great difference between intelligent, humble-minded standardization with adequate provision for experimental variation and, on the one hand, the inevitable anarchy resulting from independent choice of philosophy by each teacher, and on the other the crushing rigidity of standardization by an administration which believes implicitly that *it* knows the best and brooks no variation from its decisions.

The ultimate philosophy of life must be worked out by man experimentally, a slow, painful process. Waste and pain can be eliminated if choice is made a coöperative act, and if the tentative nature of executive adoption is frankly recognized and accepted by all as the essential element of executive action. Freedom under law is as rational an ideal for a school system as it is for a commonwealth.

For those who understand and accept this point of view, the crux of the matter is the devising of schemes of teacher rating that shall involve only objective description and eliminate evaluation. This is not a difficult achievement. It is only necessary to record what is *observed* in the classroom and not the inferences one makes from his observations. For instance, to visit a classroom and record that the children were disorderly is to record an inference and not an observation. The teacher who has worked long and hard to secure initiative and self-activity on the part of the pupils, who has broken away from that ideal of education which demands that children move or speak only on the command of the teacher, will resent most vehemently the report that her children were disorderly. She will point with pride to the fact that there was no fooling or wasteful conflict; that every child moved or spoke only when there was legitimate reason to do so;

that there was no child who *asked for* permission to move or gave any other indication of repression; that a large volume of work was successfully accomplished in the hour; that the noise and confusion of speaking, moving, etc., was less in amount and far better controlled than for a working group of teachers of equal number. She would gladly accept and sign as correct a series of observations as follows:

1. Thirty-five children out of forty moved at will from their seats to talk to, or work with, classmates.
2. Children spoke to each other in ordinary tones which could be heard throughout the room.
3. No cases of fooling or idling were observed.
4. The children looked directly at their work while working, worked without direction from their teacher, did not appear to be disturbed by the noise of movement and conversation which was present at all times during the hour.
5. The teacher moved from child to child answering questions. She was appealed to by twenty-seven children of the forty; by fifteen children two or more times.
6. The forty children completed three hundred and eighty-nine problems within the hour, of which all were right in principle and three hundred and seventy-five absolutely correct.

The teacher would draw the inference from the above report that she had succeeded in developing self-direction, self-appraisal, self-control, and coöperation. She would be well satisfied with her success.

If the observer believed in teacher-directed mass education, *he* would evaluate the lesson as a failure. His inference in regard to order would be that it was unsatisfactory; the children were not being subjected to discipline; were being trained in independent action, and in disregard for authority. He would consider the teaching wasteful. One explanation by the teacher would have served, in his judgment, for all the personal explanations to each child. The teacher was merely pampering the children and spoiling them. The large volume of examples done would be to him evidence of the teacher's helping the children over their difficulties instead of teaching the children to master them, etc., etc.

What impression do *you* get, dear reader, from the following report of an observation?

Subject—Spelling	Time—30 minutes
Teacher asked 136 questions using 1970 words.	
Rate 65.7 words per minute.	
Children answered 110 questions using 467 words.	
Rate 15.8 words per minute.	
3 children recited 0 times	
5 children recited 1 time	
8 children recited 2 times	
5 children recited 3 times	
2 children recited 4 times	
7 children recited 5 times	
2 children recited 6 times	
32 children recited 91 times	
Number of children asking questions, proposing words, etc. ....	0

There is in this report nothing indicating merit. Upon reading it, one gets a picture of a teacher-dominated, rapid-fire question and answer recitation, the teacher proposing words and calling on children to spell them. It is a "testing" recitation following study. If one "feels" or believes this is proper practice in spelling, one makes the judgment, "This is a good teacher." If, however, one "believes" that the growth of the child in personality ought to be the goal of educational effort, one "feels" that such teaching is the grossest violation of all that true education should be, and that the teacher is a menace both to the profession and to society. The greater the skill of the teacher, the greater the menace.

It is possible to class teaching into types and rate teachers as to type, not on a merit basis but on a descriptive basis. One can impersonally and accurately describe a teacher as to type even though he abominates the type. He can even determine without bias the skill of the teacher within a given type provided he is not called upon to evaluate the result. Skill in making descriptive rating by means of objective scales can be developed in any honest person by training. The information flowing to the superintendent's office from the ratings by trained principals and supervisors when they are limited to description alone is verifi-

able, and measurable as to reliability. Moreover, the skill and honesty of the rater can be measured objectively. When these facts are recognized by superintendents and evaluation is reserved for executive action, existing difficulties with teacher rating systems will largely disappear.<sup>5</sup>

As an illustration of the use of descriptive rating the action of Superintendent M. R. Keyworth of Hamtramck, Michigan, may be cited. The Board of Education adopted a code based on a progressive philosophy of education which stresses the development of personality traits as opposed to subject matter achievements. There was need to determine the status of the teaching corps with reference to the new teaching policy. Note that the problem is one of determining not merit, but status. By the act of the Board of Education changing the policy of instruction from one type to another, the merit of the *best* teacher under the old system was automatically made the *worst* under the new. The superintendent realized this and realized further that for the time being it was useless to think in terms of merit. The problem confronting him was a problem of retraining the teachers to new standards of merit, and his first need was to determine how great a problem this was.

The steps in the solution were as follows:

1. The director of instruction and the supervisor of spelling visited teachers to observe and record the objective characteristics of their work.
2. A Descriptive Rating Blank was devised, based on these observations, and a manual defining the terms used.
3. Principals met with the superintendent, discussed the rating blank and the need for objectivity. They observed and rated teachers together until satisfied by comparison of their independent ratings that they could rate alike. Then in a given period all the teachers of the city were rated and a report was made to the superintendent.

The rating blank is too long to quote in full, but illustrations based on portions of it may prove helpful.

<sup>5</sup> Objective rating scales on a descriptive basis have been developed by L. J. Brueckner and are available, together with essential training material, standard scores, etc. See Bulletin No. 12, Vol. XXX, February, 1927, College of Education, University of Minnesota.

## ILLUSTRATION FROM RATING SHEET\*

## HAMTRAMCK PUBLIC SCHOOLS

## Descriptive Rating Sheet—Spelling

Prepared by the Department of Instruction

Teacher observed..... Observer.....  
 School..... Room.....  
 Grade..... Membership..... Pupils present.....  
 Date..... Observation begun..... Ended.....

## ABBREVIATIONS FOR AGENTS

T=teacher L=leader C=class G=group M=monitor I=individual

## ABBREVIATIONS FOR DISCIPLINE

A=attention T=threaten R=ridicule P=penalty Sm=smiles  
O=order S=sarcasm Sg=suggestion C=corporal Pr=praise

## 1. Initiation of lesson.

					TIME
(1.) Activity:	Prepare	distribute	group	.....	From...
(2.) Agent:	.....	.....	.....	.....	To.....
(3.) Method:	Order	announce	discuss	.....	Min. ....
(4.) Discipline:	.....	.....	.....	.....	

## ILLUSTRATION FROM MANUAL

To aid you in your use of the rating sheet, each of the terms will be defined, and the type of record to be made indicated.

I. Initiating the lesson is to include all the transition activities carried on in changing from a lesson in one subject to a lesson in another. For instance, if a class is working on arithmetic and the time comes for spelling, there will be need to put away arithmetic books and papers, to take out spelling materials, pens, etc., and to get ready for spelling work. Anything done during the transition period from arithmetic work to spelling work is to be included under "Initiating."

Specifically, record in the time column the minutes and seconds when the transition begins and when it ends. Find the difference to get the time taken to make the change.

1. **ACTIVITY.** Draw a line around *Prepare*, if there are preparation activities of putting away material upon which the children have been working or of taking out spelling materials, or of both.

Encircle *Distribute*, if books, papers, pencils, etc., are distributed.

Encircle *Group* if the children change seats to form a new grouping for

\*The other headings are: stimulation, selection of words, development of meanings, development of spelling, study, planning, playing games, testing, scoring, marking, judgment, generalization, assignment, assistance, termination of lesson, discipline, motivation, handling materials.

spelling, or if they sit in groups which carry on different types of work. Indicate by a figure the number of such groups.

A space is provided in which to write an unusual transition activity.

2. AGENT. For each element encircled in (1) Activity, write two letters: the first is to indicate the agent initiating the activity; the second, the agent actually doing the work.

For instance, *T-I* under *Prepare* would mean that the teacher directed the children to put away their books and that individual children put them away. *L-M* under *Distribute* would mean that the group leaders directed the monitors to distribute materials and that the monitors did the actual work.

Note that the letters to be used for agents are:

<i>T</i> = teacher	<i>C</i> = class	<i>M</i> = monitor
<i>L</i> = leader of group	<i>G</i> = group	<i>I</i> = individual

*C* for class and *G* for group are to be used whenever the class or group act as a social unit, discussing matters and deciding by vote.

It is important to remember that of the two letters to be written in each case, the first is to represent the agent initiating the activity and the second the agent doing the work. Be sure to write the two letters under each activity encircled in (1).

3. METHOD. Encircle *Order* when children act in response to commands. For instance, if the teacher says, "Put away your arithmetics," or "Distribute pencils," she is giving commands. If, however, she merely announces, "It is time for the spelling period," and each child of his own accord, without specific directions, puts his arithmetic away and takes out his spelling, then *announce* is to be encircled.

If some child rises and says, "I move we take up spelling now," or makes some equivalent motion, which is discussed by the group and voted upon, or even acted upon by group consent without a formal vote, *Discuss* is to be encircled.

If the lesson is initiated in some other way, write it in the space provided.

4. DISCIPLINE. Write appropriate letters to indicate anything done about discipline during the period. The letters to be used and their meanings are:

*A, Attention.* To be used when a teacher, leader, or other agent simply calls an individual's attention to the fact that he is out of order as, "John, are you whispering?" or, "Mary, that noise is disturbing the rest of us."

*O, Order.* When a positive command is given, as, "John, stop whispering," or "Class, give me your attention."

*T, Threaten.* When an agent threatens as, "John, I will send you to the principal if you don't stop whispering."

*S, Sarcasm.* When sarcastic remarks are made for purposes of control.

*R, Ridicule.* When ridicule is used as a means of control.

*Sg, Suggestion.* When correction is made by suggestion as, "Couldn't all of us work better if it were a little quieter in this room?"

*P, Penalty.* When a penalty is actually inflicted as, "John, take this seat"; "Mary, throw that gum in the waste basket."

*C, Corporal Punishment.* When a child is handled in any way by others; as, being shaken, having his head forcibly turned from a window to a blackboard, being slapped, pushed into line, etc.

*Sm, Smiles.* When the teacher or leader smiles on individuals or the class as a whole, or otherwise exerts himself to encourage or reward by creating a pleasant, joyous atmosphere.

*Pr, Praise.* When the teacher or other agent specifically commends individuals or groups because of the good quality of work done.

The record made for discipline should consist of three letters, the type of attention given, the agent giving, and the agent to whom given.

Thus, *C-T-I* would mean corporal punishment inflicted by a teacher on an individual. In such cases it is well to record by notes in the margin the specific cause and the action taken. If more than one case occurs during an activity, a record should be made for each.

The detailed instructions above should make clear the general method of procedure. Consequently, for the remainder of the sheet, terms like *Agent* once explained will be omitted, and all other explanations will be reduced to a minimum.

The entire sheet covered some twenty different phases of the lesson in similar detail. Not all of these were used with any one teacher, but for any teacher appropriate sections could be found to describe her work. Moreover, when a record was made, its objective character made it possible to submit the record to the teacher concerned and secure her approval. The record contained no word of blame or praise. It merely described what took place.

Provision was made for a merit rating by the principal at the end of the record, but this was for the purpose of measuring the principal, not the teacher. When the facts about any teacher's work are known, the rating given her reveals the philosophy of the rater. In this way the superintendent was able to make sure that the principals appraised the facts they collected intelligently.

The summary of the ratings made by the system revealed the following facts:

Of 83 teachers of spelling, 77½, or 93%, were described by the principals and superintendent as using teacher-directed methods and but 5½ teachers, or 7%, as using pupil-activity methods. The latter is the type called for under the new code.

Further, accepting the teachers' own method as "best," the degrees of teaching skill in the chosen method were reported as follows:

<i>Degrees of Skill</i>	<i>Average</i>			<i>Good</i>		<i>Excellent</i>
	6	5	4	3	2	1
Frequencies	0	6	14	43	20	0



The superintendent's training problem was accordingly accurately defined. A comparison of these results with the results of a repetition of the rating at the close of the training period will yield a measure of how successful the efforts of the administrative and supervisory forces have been in changing the teaching methods throughout the system from one basis to the other.

Such experiences suggest both that objective teacher rating is possible and that it is helpful. All who took part in the descriptive rating activity, both teachers and principals, had their attention directed to the specific differences between the two methods. Reratings of certain teachers proved that the ratings were reliable. As this was a "practical" rather than a scientific study, measures of reliability were not secured except in the best terms for busy superintendents, absence of conflicts and disturbances among the personnel. Neither teachers nor principals were emotionally disturbed by the rating activity. Conflicts of opinion were few and easily adjusted on a fact basis. Most important of all, everyone who took part found the effort at separation of description from evaluation helpful. The rating was itself a part of the training program and paved the way for a year of experimental work in attempting the new teaching procedure.

Many superintendents will find it hard to believe that a mere change from merit to descriptive ratings will eliminate so many of the evils and difficulties attached to teacher rating. Fortunately, each doubting Thomas may, by experimental trial, determine for himself the truth of the foregoing statements. The proof of the pudding is in the eating.

## CHAPTER XXII

### SUGGESTED USES FOR THIS YEARBOOK

ERNEST HORN

This yearbook should be welcomed alike by supervisors and by those who train supervisors. It is a milestone in the application of the methods of research to the improvement of supervisory procedures. The scientific attack on problems of supervision as distinguished from the problems of teaching and the problems of administration has been recent. The reports of studies in this field have been scattered in time and in place of publication. The editors of the yearbook on supervision have done, therefore, a timely service to the profession.

In saying that the investigations of supervision have been recent, it is not meant to imply that such studies have been belated. The scientific study of supervision necessarily could not proceed far until substantial progress had been made in discovering what to teach and how to teach. The supervisor has no technique by which he can dispense with competency in classroom teaching or in making courses of study. His professional equipment must include training in these items and, in addition, a prolonged discipline in the solution of the problems peculiar to supervision.

Most, if not all, of the contributors to this yearbook have spent years in the direct study of the problems of curriculum making and the problems of classroom teaching. This is as it should be. The points of view and the methods of research developed thereby give the right setting for research in supervisory techniques as well as for the establishment of a satisfactory philosophy of supervision.

This concluding chapter of the yearbook is meant to offer not so much a critical evaluation of the preceding chapters as suggestions as to how these chapters may be used by supervisors and teachers of supervisors. Since many of the chapters contain specific recommendations concerning the findings therein re-

ported, this chapter will attempt to deal with the yearbook as a whole, calling attention to certain contributions which either are not specifically treated in other chapters, or seem to deserve additional emphasis.

#### THE STIMULATION TO FURTHER RESEARCH IN SUPERVISION

The first and perhaps the most important service of this yearbook should be to stimulate further research. It may be well to point out again that investigations reported in the foregoing chapters must be distinguished (a) from research directed toward the making of courses of study, (b) from the discovery of efficient methods in teaching, and (c) from the varied problems more properly classified under administration. These three types of research are essential, and the results must be embodied in the supervisor's training. But they are not enough. The supervisor must know not only these but also how to improve courses of study and teaching *through supervision*. And if we are to have a profession of supervision worthy of the name, it must be based, at least in part, on the scientific study of the problems and techniques involved. It is to be hoped, therefore, that the yearbook will stimulate instructors and graduate students in colleges of education, as well as supervisors in the field, to carry on the work of research here so well begun. The writers of the preceding chapters have not merely cleared the ground and indicated important next steps; they have exhibited, also, that fine scientific spirit which should pervade all investigations in this field. The writer, for one, expects to make good use of their excellent work, in conducting and directing further investigations in supervision.

#### A PROPHYLACTIC AGAINST DOGMATIC, UNJUST, AND INEFFICIENT SUPERVISION

That some supervisors are opinionated and dictatorial in dealing with teachers must be frankly admitted. Some, indeed, are so obsessed with the exclusive rightness of their views that they approach dangerously close to the realm of the fanatic. Even the most kindly and open-minded of high type supervisors are probably sometimes more certain of their judgments than is warranted by the present status of scientific knowledge in this field. The supervisor will be obstinate indeed who can read this

yearbook without losing some of his cocksureness and gaining some faith in the possible adequacy or superiority of the views of others. The exhibit of the great variation in supervisors' judgments on the same lesson must lead him to see what a ridiculous picture would be made if all of the judges were at the same time bigoted and obstinate. He must see the necessity of carrying on the work, here so well begun, of developing improved techniques for analyzing and evaluating teaching. Meanwhile, he must be led to proceed somewhat less confidently in his appraisal of teaching. He will thus develop a better attitude toward teachers as well as a better attitude toward the scientific study of supervision.

What has been said about dogmatism applies to unyielding convictions regarding methods of teaching as well as to overconfidence in rating teachers. It applies also to unwarranted self-satisfaction with the means of supervision. Those who have experimented with the relative efficiency of various educational methods have long known that useless and bitter quarrels are not infrequently waged over petty points. The writer recalls one such quarrel over which he was asked to sit in judgment. The principals and the supervisor were at loggerheads as to whether the additive or subtractive method of subtraction should be used. The fact is that the difference between the two methods is insignificant, and this fact should have been known and admitted by all concerned. A proper consideration of the principals for the supervisor's point of view or a proper consideration of the supervisor for the principals' point of view would have led to ready willingness on the part of each to adopt the point of view of the other on so insignificant a matter, thus preventing irritation and saving energy for more worthy tasks.

Perhaps it is not always dogmatism but sometimes mere inertia which explains the ruts into which supervisors easily fall. In either case it will not add to the mental comfort to read Chapter XVIII, which shows that the most used supervisory procedure is one of the least helpful or that one of the most helpful techniques is among those least used. In short, this yearbook turns the supervisor's mind for a time away from the appraisal of a teacher's effectiveness to the appraisal of the effectiveness of supervision. Supervisors, as well as those who train them, can benefit by fairly large doses of this medicine.

## RENEWED HOPE IN TEACHER RATING

The need for some adequate method of rating teachers cannot be questioned. It is intolerable to think of selecting teachers and enlarging their professional opportunities solely, or even chiefly, on the basis of length of service, amount of schooling, and political favoritism. The goal is certainly to select teachers and to enlarge their opportunities primarily on the basis of merit. The path to this goal, however, is strewn with the wrecks of plans of superintendents who have attempted more or less thoroughgoing plans of advancement according to merit. The chapters of the yearbook which deal with the various phases of this problem show clearly that progress has been made in increasing the objectivity and reliability of rating teachers.

The proposal to make a distinction between the description of teaching and the evaluation of teaching is certainly a step forward. This unquestionably moves rating in the direction of objective methods and lessens the influence of the personal bias of the observer. It does not remove such bias entirely, since the facts which are reported are noticed and selected and other facts unnoticed and neglected according to the point of view of the observer. Undoubtedly some significant good points as well as some significant bad points are always omitted in such descriptions. However, given on the part of the supervisor open-mindedness and the desire to be fair, descriptions of teaching will undoubtedly tend to be more impersonal than are evaluations of teaching.

Unmistakable difficulties are involved in the plan of rating narrowly under the strict guidance of the philosophy of the superintendent who happens to be in office. To be sure, the ratings would thus be made more reliable in a statistical sense, but they would at the same time run the danger of being consistently invalid as measures of good teaching. Nothing could be worse than unvarying and intolerant bias on the part of the person doing the rating. The effects of differences in philosophies of education upon practical teaching have undoubtedly been greatly exaggerated. Philosophies come and go, but good teaching, though never as common as we would wish, goes on forever. To be sure, there are those who would have us believe that systematic and somewhat formal teachers working conscientiously under an old

but still widely prevalent philosophy are destructive of the proper ends of education. This seems to the writer to be unwarranted either by evidence or by logic. More likely the best of such teachers inspire their pupils, train them in the essential abilities for the teaching of which these teachers are responsible, and even stimulate initiative to a degree which compares favorably with the results obtained by the best teachers in so-called progressive schools today. The fact that the writer of this chapter prefers a reasonably informal school organization is no justification for an intolerant attitude on his part toward teachers who seem to teach better by more formal methods. That the best teachers under any widely accepted philosophy become the worst teachers from the point of view of some other widely accepted philosophy seems contrary to evidence and experience. Moreover, if teachers were to be rated intolerantly by each new superintendent whose philosophy differs from their own, they would be placed in an impossible position. The average tenure of the superintendent is said to be three years. Suppose that under Superintendent X a teacher has conscientiously improved herself to the point of being reliably rated as the best teacher in the system according to the philosophy of that superintendent. Suppose, now, that Superintendent X is superseded by Superintendent Y, who has a different philosophy of education. The "best teacher" may now be ranked poor or worse, if we are to assume that the new superintendent's philosophy is as potent as some have pictured it to be. What a disheartening prospect of instability to hold up before the classroom teacher! No rating system should be used which tends to break down school morale. Therefore, the liberal-minded superintendent will prefer for the present to rate as "good" a teacher who is good from the point of view of any one of the competently accepted philosophies of education which are current today. In this way both reliability of rating and essential tolerance will be improved.

#### SELECTIVE RATHER THAN ROUTINE SUPERVISION

Few schools have an adequate supervisory staff. Since there are always more things to do than can be done, only the most important things can be accomplished. This means that supervisors must have some principle or principles by which to determine what to undertake and what to neglect. Chapter VII

suggests one type of research the results of which should help supervisors materially to make the most efficient use of their time; that is, by focusing the attention on those things which teachers find most difficult to do well. Undoubtedly intelligent supervisors have always been guided in helping teachers by what experience has shown to be the commonest types of difficulties. Too often, however, the help given has been chiefly limited to haphazard personal interviews and has consisted in extemporaneous rather than in a systematically planned attack on the problems most commonly met by the teaching staff as a whole. As a result, much of the supervisor's time is wasted and an opportunity lost for building the intelligent like-mindedness so essential to staff morale. The supervisor needs the guidance of a list of common teaching difficulties. Obviously a dependable list of such difficulties can be made only as the result of painstaking investigation. Studies such as those reported by Professor Waples are consequently not only of great value to the program of training teachers in service but also to the program of preparing teachers in teachers' colleges.

#### AVOIDING LOSS OF PERSPECTIVE

Finally, without detracting in any way from the vital importance of the suggestions made in the various chapters in this yearbook, it may be well to warn against permitting any of these supervisory techniques to get out of hand and hence destroy or impair the perspective which both teachers and supervisors must have. The records of the last thirty years are full of exhibits of ill-guided enthusiasms which were allowed to preclude a well-balanced supervisory program. Witness the museums of discarded manual training equipment, the piles of lesson plans built on the five formal steps, and the stacks of overstressed, uninterpreted, or misinterpreted, standard tests. Such substantial values as were inherent in these procedures were greatly diminished both by loss of perspective and by the reaction caused by improper emphasis. The supervisory staff has as one of its chief responsibilities the maintenance of a steady, progressive, well-balanced view of the whole educational program. "Where there is no vision, the people perish."

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